

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

TAIWAN SEMICONDUCTOR MANUFACTURING COMPANY LTD.,
Petitioner

U.S. Patent No. 7,547,584

**DECLARATION OF INGRID HSIEH-YEE, PH.D.
UNDER 37 C.F.R. § 1.68 IN SUPPORT OF PETITION
FOR *INTER PARTES* REVIEW**

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I, Ingrid Hsieh-Yee, declare as follows:

I. INTRODUCTION AND QUALIFICATIONS

1. I am over the age of eighteen and otherwise competent to make this declaration.

2. I have been retained by counsel for Petitioner to provide my expert opinion in connection with the above-captioned proceeding (“IPR”) regarding the public availability of certain prior art references in relation to U.S. Patent No. 7,547,584 (the “’584 patent”).

3. I am being compensated for my time in connection with this IPR at my current consulting rate. I am also being reimbursed for any reasonable expenses associated with my work and testimony in this investigation. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of this matter.

A. Qualifications and Professional Experience

4. My complete qualifications and professional experience are described in my academic curriculum vitae (**Appendix A** to this declaration). The following is a brief summary of my relevant qualifications and professional experience.

5. I was a professor in the Department of Library and Information Science at the Catholic University of America for 32 years and was conferred the title of Professor Emerita in December 2022. I have experience working in an academic

library, a medical library, and a legislative library. I hold a Ph.D. and a Masters in Library and Information Studies from the University of Wisconsin-Madison.

6. I am an expert on library cataloging and classification and have published two editions on this subject, *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide* (2000 and 2006). I taught a variety of courses, including Cataloging and Classification, Advanced Cataloging and Classification, Organization of Internet Resources, Organization of Information, Metadata, Digital Content Creation and Management, Internet Searches and Web Design, Information Literacy Instruction, Advanced Information Retrieval and Analysis Strategies, and The Information Professions in Society. I am familiar with metadata schema design and implementation. In my teaching, I covered the design and implementation of metadata in databases, search engines, digital repositories, digital libraries, and digital archives. I also covered how information organization affects the discovery and access to digital resources on the Internet. My research interests cover cataloging and classification, information organization, metadata, information retrieval, information architecture, digital collections, scholarly communication, social media, user interaction with information systems, and others

II. BACKGROUND OF LIBRARY CATALOGING

A. Machine-Readable Cataloging (“MARC”)

7. I am very familiar with a library cataloging encoding standard known

as the “Machine-Readable Cataloging” standard, also known as “MARC,” which became the national standard for sharing bibliographic data in the United States by 1971 and the international standard by 1973. MARC is the primary communications protocol for the transfer and storage of bibliographic metadata in libraries. Experts in my field reasonably rely upon MARC records when forming their opinions.

8. A MARC record consists of several fields, each of which contains specific data about the work. Each field is identified by a standardized, unique, three-digit code corresponding to the type of data that follows. **Appendix B** is a true and correct copy of Parts VII to X of “Understanding MARC Bibliographic: Machine-Readable Cataloging” (<https://www.loc.gov/marc/umb/um07to10.html>), a brief description and tutorial published by the Library of Congress in 2009 that explains commonly used MARC fields. For example, the personal author of a work is recorded in Field 100, the title is recorded in Field 245, publisher information is recorded in Field 260, the physical volume and characteristics of a publication are recorded in Field 300, and topical subjects are recorded in Fields 650. More details of MARC21 format for Bibliographic Data are available on the Library of Congress website at <https://www.loc.gov/marc/bibliographic/>.

9. I am very familiar with library cataloging and processing practices and the relationships between OCLC (Online Computer Library Center) and library catalogs, and how libraries create and share their records to help the public discover

and access information.

10. OCLC is the largest bibliographic network of the world, and its WorldCat database, as of December 2024, contains more than 586 million records from thousands of member institutions (many of which are libraries of some type) in more than 100 countries. OCLC was founded in 1967 to promote and support library cooperation. According to the third article of the “Amended Articles of Incorporation of OCLC [Online Computer Library Center], Inc.,” OCLC was created “to establish, maintain, and operate a computerized library network and to promote the evolution of library use, of libraries themselves, and of librarianship, and to provide processes and products for the benefit of library users and libraries, including such objectives as increasing availability of library resources to individual library patrons and reducing the rate of rise of library per-unit costs, all for the fundamental public purpose of furthering ease of access to and use of the ever-expanding body of worldwide scientific, literary, and educational knowledge and information” (source: <https://www.oclc.org/content/dam/oclc/membership/articles-of-incorporation.pdf>).

11. OCLC members can contribute original cataloging records in MARC to the system or derive cataloging records from existing records, an activity referred to as “copy cataloging.” When an OCLC participating institution acquires a work, it can create an original MARC record for the work in OCLC’s WorldShare system (a system for catalogers to create and share MARC records), and the system will

automatically generate a code for the date of record creation in the yymmdd format, and the creating library's OCLC symbol is recorded in subfield "a" of the 040 field. Once the MARC record is in WorldShare, it becomes available to other OCLC members for adoption to their local online catalogs (*i.e.*, copy cataloging).

12. After a MARC record is created in WorldShare, it is entered into the OCLC WorldCat database, which is "the world's most comprehensive database of information about library collections" (source: WorldCat at <https://www.oclc.org/en/worldcat.html>). The record also becomes searchable and viewable on WorldCat.org, which is a free web portal for the interested general public to explore more than 10,000 libraries worldwide. Records in WorldCat.org, however, are not presented in MARC fields. Instead, the data elements are labeled to help users interpret the records. Thus, the information stored in MARC records in the OCLC WorldCat database is available to the interested public through the user-friendly WorldCat.org web portal. WorldCat database records can also be searched on OCLC FirstSearch, a subscription-based search system that provides access to many proprietary databases, including the WorldCat database. Records in OCLC FirstSearch are not presented in MARC but contain more technical details, including the date when records are entered into the OCLC WorldCat database.

B. Library Online Catalogs

13. Library online catalogs gained acceptance in the early 1980s and many

libraries migrated their systems to the World Wide Web in the mid-1990s. Library online catalogs are based on MARC records that represent their collections in order to help the public understand what materials are publicly accessible in those libraries. Most libraries with online catalogs have made their catalogs freely available on the Web. These online catalogs offer user-friendly search interfaces. Strong user interest in keyword searches and the popularity of Google have led to the “googlization” of library search systems. As a result, many library catalogs nowadays provide a single search box for users to conduct keyword searches, with additional support for searches by author, title, subject terms, and other data elements such as ISBN (International Standard Book Number). Library catalogs these days also offer features for users to narrow their search results by language, year, format, and other elements. Many libraries display MARC records on their online catalogs with labels for the data elements to help the public interpret MARC records. Many libraries also offer the option to display MARC records in MARC fields.

14. Libraries create MARC records for works they acquire, including books, serials, motion pictures, and publications in other formats. Monograph cataloging is fairly common in libraries, and most libraries make a newly cataloged monograph available to the public soon after the cataloging work is completed, usually within a week. Libraries can create original cataloging records or use an existing record in the OCLC WorldCat database to create a copy cataloging record.

As soon as the cataloging record is completed, it is added to the library's online catalog for users. If the record is an original record, it is also entered into the OCLC system. If it is a copy cataloging record, the library's holding symbol is attached to the existing original record in the OCLC system to facilitate searching and interlibrary loan.

15. I am personally familiar with many online catalogs, databases, and search engines. In preparing for this declaration, I used the following authoritative information systems to search for records:

- Google Scholar (<https://scholar.google.com/>)
- Internet Archive (<https://archive.org/>)
- Online catalog of the Library of Congress (<https://catalog.loc.gov/>)
- Online catalog of the University of California, Berkeley Library (https://search.library.berkeley.edu/discovery/search?vid=01UCS_BE R:UCB)
- Online catalog of the University of Michigan Library (<https://www.lib.umich.edu/>)
- Online catalog of the University of Wisconsin-Madison Library System (<https://search.library.wisc.edu/search/system>)
- Online catalog of the Yale University Library (<https://search.library.yale.edu/catalog>)

- Public catalog of the US Copyright Office (<https://cocatalog.loc.gov/>)
- WorldCat.org, the free web portal (<https://search.worldcat.org/>)

C. Scope of this Declaration

16. I have been asked to offer an opinion on the public availability dates of the following documents:

- Excerpts of *Silicon Processing for the VLSI Era*. Volume 4. *Deep-Submicron Process Technology*, by Stanley Wolf and Richard N. Tauber, Lattice Press, 2002, **Ex.1004** (“*Wolf*”);
- Excerpts of *Semiconductor Manufacturing Technology* by Michael Quirk and Julian Serda, Prentice Hall, 2001, **Ex.1012** (“*Quirk*”);
- Excerpt of *Chemical Mechanical Polishing in Silicon Process*, Semiconductors and Semimetals, vol. 63, edited by S. H. Li and R. O. Miller, Academic Press, 2000, **Ex.1013** (“*Li*”);
- Excerpts of *Microchip Fabrication: A Practical Guide to Semiconductor Processing* by Peter Van Zant, 3rd edition, McGraw-Hill, 1996, **Ex.1014** (“*Van Zant-1997*”); and
- Excerpts of *Microchip Fabrication: A Practical Guide to Semiconductor Processing* by Peter Van Zant, 5th edition, McGraw-Hill, 2004, **Ex.1015** (“*Van Zant-2004*”).

17. I am informed by counsel that a given reference is “published” upon a

satisfactory showing that such a document has been disseminated or otherwise made publicly available to the extent that persons interested and ordinarily skilled in the subject matter or art could locate it exercising reasonable diligence and obtain the document. I have also been informed by counsel that materials available in a library constitute “printed publications” if they are catalogued and indexed according to general library practices and protocols that make the references available and accessible to members of the interested public.

18. I have been informed by counsel that the '584 patent claims May 27, 2005 as its earliest priority date. I have assessed public accessibility of the documents referenced above as of this claimed priority date.

D. Evidence Considered in Forming My Opinion

19. In the preparation of this declaration, I have reviewed **Ex.1004** and **EXs1012-1015** referenced in Paragraph 16, and any other documents I reference herein. Each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions. I provided a further description of materials I considered in **Appendix C**.

III. AUTHENTICITY AND PUBLIC AVAILABILITY OF *WOLF* (EX.1004).

A. Authentication

20. **Ex.1004** is a true and correct copy of excerpts of *Silicon Processing for the VLSI Era*. Volume 4. *Deep-Submicron Process Technology*, (“*Wolf*”), by Stanley

Wolf and Richard N. Tauber, Lattice Press, 2002, that I obtained from the University of Wisconsin-Madison Library System (“UW”). To ascertain the availability of *Wolf* in libraries, I researched information on libraries holding this book on WorldCat.org, the free web portal, and a WorldCat record at <https://search.worldcat.org/title/43698493> showed UW was one of the holding libraries. After verifying the holdings information in the library’s online catalog, I obtained a copy of excerpts of this book from UW through a document vendor. This copy of *Wolf* is presented as **Ex.1004** in this declaration.

21. Page 1 is a bound volume whose spine shows the title, author, call number of this work (“TK7874 W635 2000 v.4”) and “WENDT” as the library storing this work. Page 2 shows a date stamp of “Received Nov 26 2002 University Library.” Page 4 is the title page that shows “Deep-submicron process technology” is volume 4 of *Silicon Processing for the VLSI Era* by Stanley Wolf, published by Lattice Press of Sunset Beach, California. Page 5 is the copyright page that shows a “2002” copyright date and the publisher holds the copyright. This page shows a record identified as “Library of Congress Cataloging in Publication Data” and “0-9616721-7-X” as the ISBN (International Standard Book Number) of this work. The bottom of the page shows a library stamp of “General Library System, University of Wisconsin-Madison, 728 State Street, Madison, WI 53706-1494, U.S.A.” Page 6 is the “Master Table of Contents” that shows this work includes a preface, 16 chapters

and an index. Pages 7 to 20 are the detailed table of contents. Pages 21 and 22 (internal pages xxi and xxii) are the preface that explains that “*Silicon Processing for the VLSI Era* is a multi-volume treatise ... [t]he volume in hand is the fourth in the series.” It further explains that “Volume 1 (*Process Technology*, 2nd Edition) was published in 2000,” “Volume 2 (*Process Integration*) was released in 1990” and Volume 3 (*The Submicron MOSFET*) was published in 1995. Pages 23 to 38 are internal pages 75, 76, 134, 348, 349, 639-643, and 674-679.

22. This copy of the excerpts of *Wolf* from UW (**Ex.1004**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the sections included, and there are no visible alterations to the document. Furthermore, this copy of *Wolf* is in the custody of a well-known academic library. Based on my analysis, I see no reason to question the authenticity of this copy of excerpts of *Wolf* (**Ex.1004**).

B. Records of the University of Wisconsin-Madison Library System

23. To determine the public availability date of *Wolf*, I obtained library records for this work. **Ex.1004A** is a true and correct copy of the bibliographic and MARC records for *Silicon Processing for the VLSI Era* that includes *Wolf* as volume 4. I personally identified, located, and obtained these records from the online catalog of UW. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

24. Pages 1 to 4 of **Ex.1004A** are the bibliographic record that shows the author, title, contributor, publisher, and the starting date of this multi-volume series. It also includes ISBNs and an OCLC number of “43698493.” The contents field shows UW holds volume 1 *Process Technology* and volume 4 *Deep-Submicron Process Technology*. These details match the information presented in **Ex.1004**, confirming this record represents the multi-volume series.

25. Pages 4 to 6 are the MARC record. The first six digits of Field 008 show the MARC record was created on “000323” (*i.e.*, March 23, 2000). Subfields “a” and “c” of Field 040 show “NJI” created the original MARC record and entered it into the OCLC WorldCat database. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), “NJI” is the OCLC library symbol for the New Jersey Institute of Technology. Fields 008 and 040 inform my opinion that the New Jersey Institute of Technology created the original record for this multi-volume treatise on March 23, 2000 when volume 1, 2nd edition, was published, and UW used that record to create their copy cataloging record. The contents note in Field 505 shows UW holds volume 1 and volume 4. While the UW MARC record (**Ex.1004A**) does not indicate when volume 4 was added to the library collections, the date stamp in **Ex.1004** shows UW received volume 4 on November 26, 2002. For a multi-volume treatise, the cataloging of a new volume to the treatise involves adding the title of the new volume to the contents note to Field 505, then the new

volume is processed for public access. It is therefore my opinion that *Silicon Processing for the VLSI Era* would become publicly discoverable at the UW online catalog by November 26, 2002, if not earlier. A customary library cataloging and processing practice is to process a newly cataloged monograph promptly for public access, usually within a week after cataloging is completed. Based on my knowledge of the customary library cataloging and processing practices, it is my opinion that volume 4 *Deep-Submicron Process Technology* would become publicly accessible at UW by December 3, 2002.

26. Fields 020 show the ISBNs of volume 1 and volume 4 of *Silicon Processing for the VLSI Era*. Field 100 shows the author, Field 245 shows the title, and Fields 264 shows the publisher information and the starting date of this multi-volume treatise. Field 505 shows UW holds volume 1 and volume 4. Field 700 shows the second author is included to help users discover this work.

27. Subjects of this multi-volume treatise are represented in the call number area by a Library of Congress Classification (LCC) number of “TK7874” that represents general works on “Microelectronics. Integrated circuits” (Source: Library of Congress Classification, Schedule T at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf). Subjects are also represented in Fields 650 by two Library of Congress subject headings: Integrated circuits \$x Very large scale integration (“\$x” indicates a topical

subheading), and Silicon. These subject representations enable users to conduct subject searches to discover the multi-volume treatise that includes *Wolf*.

28. This MARC record (**Ex.1004A**) confirms that *Silicon Processing for the VLSI Era* is a multi-volume treatise and UW holds volume 1 and volume 4. The date stamp on **Ex.1004** shows that this multi-volume treatise would be publicly discoverable at UW by November 26, 2002, when the library received volume 4. As of that date, the interested public would be able to discover this treatise by conducting subject searches by the LCC number and the Library of Congress subject headings in the library records. They would also be able to search for this treatise by the title, authors, and ISBNs.

29. As evidence that UW had an online catalog in operation when **Ex.1004** became discoverable in November 2002, I obtained a profile of the library at <https://librarytechnology.org/library/2090> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of material experts in my field would reasonably rely upon when forming their opinions. This profile is presented as **Ex.1004B** in this declaration.

30. The Technology Profile on page 2 of **Ex.1004B** shows that UW began using Voyager as its online catalog in 1998, and migrated to Alma in 2013. These dates mean that in November 2002 interested users were able to use the Voyager system at UW to search for and access the multi-volume treatise that includes *Wolf*.

C. Records for *Wolf* from GVK and OCLC FirstSearch

31. Libraries can choose to catalog a multi-volume treatise as one work and include the volume titles in a contents note to inform users of the volumes in the series. This is the approach of UW. Another approach is to create a record for each volume in a multi-volume treatise to make the individual volumes easier for interested users to discover and access. GVK, Gemeinsamer Verbundkatalog, is a German union catalog for more than 1,000 libraries in the Common Library Network (GBV) and the Library Network Southwest German (SWB) (source: GBV Union Catalog at <https://rena.mpdl.mpg.de/rena/Record/ERS000000197>). I have found a record for volume 4 *Deep-Submicron Process Technology* in GVK. I personally located, identified, and obtained the record. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

32. **Ex.1004C** is a true and correct copy of the GVK record for *Wolf*. Page 1 is a screen capture to show I discovered this record by conducting a title search in GVK. The retrieved record shows the title of *Wolf*, the author, the collective title, publisher, copyright date, language, physical description, ISBN, a link to the table of contents (“Inhaltsverzeichnis” in German), and an OCLC WorldCat logo. Page 2 is a PDF of this record that shows three German libraries hold *Wolf*. Page 3 is the table of contents I obtained from the link in the GVK record. The bottom of this page shows the Table of Contents is provided by Blackwell’s Book Services and R.R. Bowker. I

have closely compared this page with the Master Table of Contents in **Ex.1004** and found them to contain the same chapter headings and page numbers for each chapter. The only difference is page 3 in **Ex.1004C** does not include chapter numbers.

33. GVK records are not displayed in MARC, so I obtained the record for *Wolf* in the OCLC FirstSearch system. This record is included as pages 4 and 5 of **Ex.1004C**. The OCLC FirstSearch system supports subscribers to access many proprietary databases, including the OCLC WorldCat database, which holds the most comprehensive information on library collections worldwide. WorldCat records are displayed in OCLC FirstSearch with field labels, not in MARC, but the “Date of Entry” field shows the date when the record is added to the OCLC WorldCat database. According to the OCLC Glossary (https://help.oclc.org/Librarian_Toolbox/OCLC_glossaries/OCLC_glossary#D), “Date of entry” in FirstSearch detailed records is “the label for MARC field 008/00-05” (*i.e.*, the first six positions of MARC Field 008). The OCLC FirstSearch record for *Wolf* shows that this record in the German union catalog was created and entered into the OCLC WorldCat database on “20030728” (*i.e.*, July 28, 2003). **Ex.1004C** informs my opinion that *Deep-Submicron Process Technology*, which is volume 4 of *Silicon Processing for the VLSI Era*, became discoverable by members of GVK, the German union catalog, from July 28, 2003 on. In addition, the record was entered into the OCLC WorldCat database on that day, making *Wolf* discoverable by

subscribers to OCLC FirstSearch and by the general public who can freely access WorldCat.org, the free web portal on the Internet.

D. Records of the Yale University Library

34. Another library that takes the same approach as UW to catalog *Silicon Processing for the VLSI Era* is the Yale University Library (“YUL”). **Ex.1004D** is a true and correct copy of the bibliographic and MARC records for this multi-volume treatise that I personally located, identified, and obtained from the online catalog of YUL. These are the type of records experts in my field would reasonably rely upon when forming their opinions.

35. Page 1 of **Ex.1004D** is a screen capture of the bibliographic record in the YUL online catalog. Page 2 is the PDF of the bibliographic record that shows the title, ISBNs of the four volumes, publisher and copyright date (“c1986-2002”), physical description, bibliography note, table of contents note, subjects, and second author. The “Add to Catalog” field shows the record was added to the YUL catalog on “February 13, 2004.”

36. Page 3 is the MARC record. The first six digits of Field 008 show the record was created on “900827” (*i.e.*, August 27, 1990), and the code of “m19862002” indicates this publication has multiple publication dates starting with 1986 and ending with 2002. These dates inform my opinion that the record for *Silicon Processing for the VLSI Era* was first created in August 1990, and as new volumes

became available, they were added to the MARC record in the contents note field (Field 505), and the end date in Field 008 was updated to reflect the publication date of volume 4. The excerpts from UW (**Ex.1004**) and the GVK record (**Ex.1004C**) show *Deep-Submicron Process Technology* was published in 2002, and that date is consistent with the YUL record (**Ex.1004D**) that shows that on February 13, 2004, YUL added the record for *Silicon Processing for the VLSI Era (Deep-Submicron Process Technology included)* to their online catalog.

37. Fields 020 show the ISBNs of the four volumes in this multi-volume treatise, Field 100 shows the first author, Field 245 shows the title, Field 505, with an indicator value of “0,” shows YUL holds volume 3 and volume 4, and Field 700 shows the second author is included in the YUL MARC record to help users discover this work.

38. Subjects are represented in Field 050 by a Library of Congress Classification (LCC) number of “TK7874” that represents general works on “Microelectronics. Integrated circuits” (Source: Library of Congress Classification, Schedule T at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf). Subjects are also represented in Fields 650 by two Library of Congress subject headings: Integrated circuits \$x Very large scale integration (“\$x” indicates a topical subheading), and Silicon. These subject representations enable users to conduct

subject searches to discover the multi-volume treatise that includes *Wolf*.

39. The YUL MARC record (**Ex.1004D**) shows the multi-volume treatise that includes *Wolf* became discoverable in the library's online catalog on February 13, 2004. As of that date, interested users would be able to discover the multi-volume treatise and its volumes by the ISBNs (Fields 020), authors, and titles. Interested users would also be able to conduct subject searches by the LCC number and the Library of Congress subject headings assigned to this work.

40. As evidence that YUL had an online catalog in operation by February 2004, I obtained a profile of the library at <https://librarytechnology.org/library/2280> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. This is the type of material experts in my field would reasonably rely upon when forming their opinions. This profile is presented as **Ex.1004E** in this declaration.

41. The Technology Profile on page 2 of **Ex.1004E** shows YUL began using Voyager as its online catalog in 2001, and migrated to Alma in 2023. These dates mean that in February 2004 interested users were able to use the Voyager system at YUL to search for and access the multi-volume treatise that includes *Wolf*.

E. Internet Archive Records

42. Internet Archive is a digital library that archives scholarly materials, cultural artifacts, and other web resources on the Internet and provides free public

access to its collections. I have used Internet Archive in the past and am familiar with their Wayback Machine and their practice of assigning an extended URL to an archived resource in the format of [http://www.archive.org/web/\[Year in yyyy\]\[Month in mm\]\[Day in dd\]\[Time code in hh:mm:ss\]/\[Archived URL\]](http://www.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL]) to show the point of time the archived file was captured.

43. Because Internet Archive usually does not archive web resources the moment they appear on the Internet, and a web resource must be available first before it can be archived, the archive date of a file captured by the Internet Archive means that the archived file was available before, and definitely no later than, the archive date.

44. To determine the public availability of *Wolf* on the Internet, I searched Internet Archive for records. **Ex.1004F** is a true and correct copy of the publisher's webpage for *Vol. 4 Deep-Submicron Process Technology*. I personally located, identified and obtained this webpage. This is the type of material experts in my field would reasonably rely upon when forming their opinions.

45. Page 1 of **Ex.1004F** is a screen capture of a Wayback Machine calendar that shows the publisher's webpage for *Wolf* was captured five times between 2002 and 2004, and this particular copy was archived on "SEP 05 2002" and available at <https://web.archive.org/web/20020905154536/http://www.latticepress.com/rep130si>

[lwaf.html](#). Page 2 is the PDF of this archived webpage that shows the title, author, copyright date, table of contents, and ISBN of *Wolf* and includes a link for users to order the book on the Internet. **Ex.1004F** informs my opinion that *Deep-Submicron Process Technology* became discoverable and accessible from the publisher by September 5, 2002.

F. Summary of My Opinion on *Wolf*

46. The copy of excerpts of *Wolf* from UW (**Ex.1004**) is authentic because it contains no sign to raise suspicion about its authenticity, and the copy is in the custody of a well-known academic library. The MARC record (**Ex.1004A**) shows UW created a record for the multi-volume treatise that includes *Wolf*, and the date stamp on **Ex.1004** shows that the library received *Wolf* on November 26, 2002. Based on these data, it is my opinion that the multi-volume treatise that includes *Wolf* became discoverable in the UW online catalog by November 2002.

47. GVK, a German union catalog, shows a record was created for *Wolf* for members of this library network, and the OCLC FirstSearch record for this GVK record (**Ex.1004C**) shows that the record was entered into the OCLC WorldCat database on July 28, 2003, making *Wolf* discoverable from that date on not only by GVK users, but also by subscribers to OCLC FirstSearch and by users of WorldCat.org, the free web portal.

48. The records from YUL (**Ex.1004D**) shows the record for the multi-

volume that includes *Wolf* was added to the online catalog on February 13, 2004, making this work discoverable from that date on. The publisher's webpage for *Wolf* (**Ex.1004F**) shows this volume was discoverable and available for online purchase by September 5, 2002, from the publisher.

49. Based on the documents and records I have reviewed and analyzed, it is my opinion that *Wolf* was publicly discoverable and accessible on the Internet by September 5, 2002. The multi-volume that includes *Wolf* became discoverable and accessible at the University of Wisconsin-Madison Library System by November 26, 2002. *Wolf* was cataloged as an individual work by a German library network and the record was entered into the OCLC WorldCat database on July 28, 2003, making this work discoverable by users of the German library network, subscribers to OCLC FirstSearch, and users of WorldCat.org, the free web portal. The Yale University Library record shows their record for the multi-volume that includes *Wolf* was added to their online catalog on February 13, 2004, making this work discoverable from that date on.

IV. AUTHENTICITY AND PUBLIC AVAILABILITY OF *QUIRK* (EX.1012)

A. Authentication

50. **Ex.1012** is a true and correct copy of excerpts of *Semiconductor Manufacturing Technology*, ("*Quirk*"), by Michael Quirk and Julian Serda, Prentice Hall, that I obtained from the Library of Congress ("LC"). To ascertain the

availability of *Quirk* in libraries, I researched information on libraries holding this book on WorldCat.org, the free web portal, and a WorldCat record at <https://search.worldcat.org/title/44162548> showed that LC was one of the holding libraries. After verifying the holdings information in the library's online catalog, I obtained a scanned copy of excerpts of this book from LC through a document vendor. This copy of *Quirk* is presented as **Ex.1012** in this declaration.

51. **Ex.1012** is a true and correct copy of excerpts of *Quirk*. Page 1 is the front cover that shows the title and authors. Page 2 is the spine and the back cover that shows this copy is from LC, the call number is "TK 7836 .Q27 2001 Copy 2" and the ISBN is "0-13-081520-9." Page 3 is the title page that shows the title, authors, and the publisher, and carries a label that appears to be a copyright registration number of "TX 5-323-100." Page 4 is the copyright page that *Quirk* has a "2001" copyright date and the publisher holds the copyright. This page also shows a record of "Library of Congress Cataloging-in-Publication Data" that shows "00-041653" as the Library of Congress Control number. This page also carries a date stamp of "Library of Congress JAN 03 2001 Copyright Office" that indicates the library received this copy on January 3, 2001. Pages 5 to 12 are the table of contents that shows *Quirk* includes 20 chapters, six appendices, a glossary and an index. Pages 13 to 15 are the Preface, page 16 is the dedication page. The rest of the pages are internal pages 4 to 9, 299, 302, 305 to 307, 326 to 328, 436, 442, 443, 450, 548 to 549, 571

to 577.

52. This library copy of excerpts of *Quirk* (**Ex.1012**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the section included, and there are no visible alterations to the document. Furthermore, this copy of *Quirk* is in the custody of a national library. Based on my review and analysis, I see no reason to question the authenticity of this copy of excerpts of *Quirk* (**Ex.1012**).

B. Library of Congress Records

53. To determine the public availability date of *Quirk*, I obtained LC records for this work. **Ex.1012A** is a true and correct copy of the bibliographic and MARC records for *Quirk*. I personally identified, located, and obtained these records from the online catalog of LC. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

54. Pages 1 and 2 of **Ex.1012A** are the bibliographic record that shows the author, title, publisher, publication date, physical description, and other details of *Quirk*. It also shows the ISBN of *Quirk* is “0130815209” and the LCCN (Library of Congress Control Number) of this record is “00041653.” The author, title, publisher, publication date, ISBN and LCCN match the information presented in **Ex.1012**, confirming this record represents *Quirk*. The “Item Availability” area shows the call number of *Quirk* is “TK7836 .Q27 2001” and the library has two copies. Interested

users can request access at the “Jefferson or Adams Building Reading Rooms” and the Reference service of the Science & Business Reading Room in the Admas Building. The status of the copies is “Not Charged” (meaning available for user request).

55. Pages 3 and 4 are the MARC record for *Quirk*. The first six digits of Field 008 show the MARC record was created on “000518” (*i.e.*, May 18, 2000), and the “s2001” code following this creation date indicates this publication has a single publication date of 2001. Field 955 records local cataloging activities and shows a pre-publication record was created on “5-18-2000” (*i.e.*, May 18, 2000), one copy was sent to BCCD (Binding and Collections Care Division) on “06-26-01” (*i.e.*, June 26, 2001) and copy 2 was sent to BCCD on “2001-08-22” (*i.e.*, August 22, 2001). Subfield “a” of Field 040 shows that “DLC” created the original record. According to the *Directory of OCLC Members* (<https://www.oclc.org/en/contacts/libraries.html>), “DLC” is the OCLC library symbol for the Library of Congress. Fields 008, 955 and 040 inform my opinion that LC created the original MARC record for *Quirk* on May 18, 2000 before the book was published. After the book was published, LC completed their cataloging work and sent the first copy to BCCD for processing on June 26, 2001. A customary library practice is to process a newly cataloged monograph promptly for public access, usually within a week after the cataloging work is completed. My personal experience

with the collections at the Library of Congress is that it can take one to three months for a newly cataloged monograph to become publicly accessible. It is therefore my opinion that *Quirk* became publicly accessible at LC no later than September 26, 2001.

56. Field 010 of the MARC record shows the Library of Congress Control Number and Field 020 show the ISBN of this book. Field 100 shows the author, Field 245 shows the title, and Field 260 shows the publisher and publication year. Field 300 shows the physical description. Field 700 shows the second author is included in the record.

57. Subjects of this book are represented in Field 050 by a Library of Congress Classification (LCC) number of “TK7836” that represents “Electronic plants and equipment. Manufacture of electronic components and apparatus” (source: Library of Congress Classification, Schedule T, at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf), and in Field 082 by a Dewey Decimal Classification (DDC) number of “621.3815/2” representing “Semiconductors) (source: WebDewey at <https://dewey.org/webdewey/login/login.html>, subscription required for access). Subjects are also represented in Fields 650 by two Library of Congress subject headings: Electronic industries, and Semiconductors |x Design and construction (“|x” indicates a topical subheading). These subject representations enable users to conduct

subject searches to discover *Quirk*.

58. This MARC record (**Ex.1012A**) shows that LC completed the cataloging work for *Quirk* on June 26, 2001, making this book discoverable in the online catalog of LC from that date on. Interested public would be able to conduct subject searches by the LCC number, DDC number and the Library of Congress subject headings in the MARC record to discover this book. They would also be able to search for this book by the authors, title, ISBN, and LCCN.

59. As evidence that LC had an online catalog in operation in 2001, I obtained a profile of the library at <https://librarytechnology.org/library/2263> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. It is the type of material experts in my field would reasonably rely upon when forming their opinions. This profile is presented as **Ex.1012B** in this declaration.

60. The Technology Profile on page 2 of **Ex.1012B** shows LC began using Voyager as its online catalog in 1998, and changed to FOLIO-EBSCO Information Services in 2023. These dates mean that as of 2001 interested users were able to use the Voyager system of LC to search for and access *Quirk*.

C. Records of the Yale University Library

61. As further evidence that *Quirk* is available at libraries, I obtained records from the Yale University Library (“YUL”). **Ex.1012C** is a true and correct

copy of the bibliographic and MARC records for *Quirk* that I personally located, identified, and obtained from the online catalog of YUL. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

62. Page 1 of **Ex.1012C** is a screen capture of the YUL bibliographic record for *Quirk*, page 2 is the PDF that shows the authors, title, ISBN, publisher, physical description, format, language, notes and subjects. The “Added to Catalog” field shows this record was added to the library catalog on “June 01, 2002.”

63. Page 3 is the MARC record. Subfields “a” and “c” of Field 040 show DLC (*i.e.*, Library of Congress) created the original record, and subfield “d” shows “CtY” modified the record later. According to the MARC Code List for Organizations (<https://www.loc.gov/marc/organizations/org-search.php>), “CtY” is the MARC code for the Sterling Memorial Library of the Yale University. Field 907 shows the record was added to the library catalog on “2002-06-01” (*i.e.*, June 1, 2002). Fields 040 and 907 inform my opinion that YUL used the LC record for copy cataloging and added the copy cataloging record to their online catalog on June 1, 2002, making *Quirk* discoverable from that date on.

64. Since the Yale MARC record (**Ex.1012C**) is based on the LC MARC record (**Ex.1012A**), the two records have many data elements in common, including the Library of Congress Control Number in Field 010, ISBN in Field 020, authors in Field 100 and Field 700, title in Field 245, publisher in Field 260, pagination in Field

300, and bibliographic reference and index note in Field 504. They also have the same LCC number in Field 050 and Library of Congress subject headings in Fields 650.

65. The MARC record of YUL (**Ex.1012C**) was added to the library's online catalog on June 1, 2002, making *Quirk* discoverable from that date on. Interested users would be able to discover this work by the LCCN, ISBN, authors, and title. They would also be able to conduct subject searches to discover this work.

66. As evidence that YUL had an online catalog in operation in 2002, I obtained a profile of the library at <https://librarytechnology.org/library/2280> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. It is the type of material experts in my field would reasonably rely upon when forming their opinions. This profile is presented as **Ex.1012D** in this declaration.

67. The Technology Profile on page 2 of **Ex.1012D** shows YUL began using Voyager as its online catalog in 2001, and migrated to Alma in 2023. These dates mean that as of 2002 interested users were able to use the Voyager system of YUL to search for and access *Quirk*.

D. Copyright Registration Record

68. **Ex.1012E** is a true and correct copy of the copyright registration record for *Quirk*. I personally located, identified, and obtained this record from the public catalog of the US Copyright Office. This is the type of record experts in my field

would reasonably rely upon when forming their opinions.

69. The title, authors, publisher, and copyright claimant match the information presented in **Ex.1012**, confirming this record represents *Quirk*. The Date of Publication field shows this book was published on “2000-11-09” (*i.e.*, November 9, 2000), and the Registration Number / Date field shows the book was registered with the US Copyright Office on “2001-01-03” (*i.e.*, January 3, 2001) with a number of “TX0005323100.” These dates align well with the date stamp date that shows LC received *Quirk* on January 3, 2001.

E. Usage Records

70. Usage of a publication is shown by other publications that make reference to it. I used Google Scholar to review citations to *Quirk* and compile a list of early citations. **Ex.1012F** presents six early citations, including the earliest citation that appeared in December 2001, and five citations that appeared in 2002.

F. Summary of My Opinion on *Quirk*

71. The copy of excerpts of *Quirk* obtained from LC (**Ex.1012**) is authentic because it contains no signs to raise suspicion about its authenticity, and this copy of *Quirk* is in the custody of a national library. The LC MARC record for *Quirk* (**Ex.1012A**) shows the library completed their cataloging work on June 26, 2001, making this book discoverable from that date on in their online catalog. Bibliographic and MARC records for *Quirk* from YUL (**Ex.1012C**) show the records were added

to their online catalog on June 1, 2002, making this book discoverable from that date on in their online catalog. The copyright registration record for *Quirk* (**Ex.1012E**) shows this book was published on November 9, 2000. Citation records (**Ex.1012F**) show the earliest citation to *Quirk* appeared in December 2001, supporting my opinion on the public availability of this book at the Library of Congress and the Yale University Library.

72. Based on the documents and records I have reviewed and analyzed, it is my opinion that *Quirk* was publicly available by September 2001 at the Library of Congress, and became publicly discoverable at the Yale University Library from June 1, 2002 on. Citations published in December 2001 and May, September, October and November of 2002 support my opinion on the public availability of *Quirk* at libraries.

V. AUTHENTICITY AND PUBLIC AVAILABILITY OF *LI* (EX.1013)

A. Authentication

73. **Ex.1013** is a true and correct copy of excerpts of *Chemical Mechanical Polishing in Silicon Process*, (“*Li*”), edited by S. H. Li and R. O. Miller, which is Semiconductors and Semimetals, vol. 63, Academic Press, 2000, that I obtained from the University of Iowa Libraries through a document vendor. This library copy is presented as **Ex.1013** in this declaration.

74. **Ex.1013** is a true and correct copy of excerpts of *Li*. Page 1 is the series information page that shows *Li* is volume 63 of Semiconductors and Semimetals.

Page 2 is the title page that shows the title, series statement, volume editors, and publisher. Page 3 is the copyright page that shows *Li* has a 2000 copyright date and Academic Press holds the copyright. This page also shows “0-12-752172-0” as the International Standard Book Number for *Li*. Pages 4 to 8 (internal pages v to ix) are the table of contents that shows *Li* has nine chapters and an index. Internal page vii shows a library stamp of “The University of Iowa Libraries.” Pages 9 to 13 are internal pages 277 to 281 of this book.

75. This library copy of excerpts of *Li* (**Ex.1013**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the section included, and there are no visible alterations to the document. Furthermore, this copy of *Li* is in the custody of an academic library. Based on my review and analysis, I see no reason to question the authenticity of this copy of excerpts of *Li* (**Ex.1013**).

B. Records of the University of California, Berkeley Library

76. To determine the public availability date of *Li*, I obtained records from the University of California, Berkeley Library (“UCB”) for this book. **Ex.1013A** is a true and correct copy of the bibliographic and MARC records for *Li*. I personally identified, located, and obtained these records from the online catalog of UCB. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

77. Page 1 **Ex.1013A** is the bibliographic record that shows the title, volume editors, publisher and copyright date, series statement, note on bibliography and index, and ISBN. These details match the information presented in **Ex.1013**, confirming this record represents *Li*. The record also includes a call number and subject headings, and indicate this work is available at the Engineering Library.

78. Pages 2 to 4 are the MARC record for *Li*. The first six digits of Field 008 show the MARC record was created on “991026” (*i.e.*, October 26, 1999), and the “s2000” code following this record creation date indicates this publication has a single publication date of 2000. Subfield “a” of Field 040 shows that “XRL” created the original record. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), “XRL” is the OCLC library symbol for the HRL Laboratories Library in Malibu, California. Field 968 is a local note field and the “Addate” element shows *Li* was added to the UCB collections on “000229” (*i.e.*, February 29, 2000). Field 996 is a local note and the “CatDate” element shows the record was created on “02-29-00” (*i.e.*, February 29, 2000). Fields 008, 040, 968, and 996 inform my opinion that UCB used the XRL record for *Li* for copy cataloging and completed their record on February 29, 2000, making *Li* discoverable in the library online catalog from then on. A customary library practice is to process a newly cataloged monograph promptly for public access, usually within a week after the cataloging work is completed. It is therefore my opinion that the

physical copy of *Li*, after processing, would become publicly accessible at UCB by March 7, 2000.

79. Fields 020 show the ISBNs of *Li*. Field 245 shows the title and volume editors, and Field 260 shows the publisher and publication year (“©2000”). Field 490 shows the series title presented in the book, and Field 830 shows the authorized form of the series to help users discover this book. Field 530 informs users that this work is also “issued online.” The two editors are included in Field 700 to help users discover this book.

80. Subjects of this book are represented in Field 090 by a Library of Congress Classification (LCC) number of “QC612.S4” that represents special topics on “Superconducting materials. Superconductors” (source: Library of Congress Classification Schedule Q, online at https://www.loc.gov/aba/publications/FreeLCC/LCC_Q2020TEXT.pdf). Subjects are also represented in Field 650 by two Library of Congress subject headings: Grinding and polishing, and Silicon. These subject representations enable users to conduct subject searches to discover *Li*.

81. This MARC record (**Ex.1013A**) shows that UCB added *Li* to their collections on February 29, 2000, and created a copy cataloging record for it on that date, making this book discoverable in their online catalog from that date on. As of February 29, 2000, interested users would be able to discover this book by the ISBNs,

title, series, and editors. They would also be able to conduct subject searches by the LCC number, and the Library of Congress subject heading in the MARC record to discover this book. After processing, the physical copy of *Li* would become publicly accessible by March 7, 2000.

82. As evidence that UCB had an online catalog in operation when *Li* was added to the library collections in February 2000, I obtained a profile (**Ex.1013B**) of the library from libraries.org, a directory of libraries throughout the world. This library profile is available at <https://librarytechnology.org/library/11>. I personally located, identified, and obtained this record. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

83. The Technology Profile on page 2 of **Ex.1013B** shows that the library used a locally developed system from 1972 and migrated into Millennium in 2008. These dates mean that in February 2000 interested users would be able to use the local online system to discover *Li*.

84. As further evidence of the availability of an online catalog in 2000, I obtained webpages of the UCB catalogs from Internet Archive. This archived copy is presented as page 3 and 4 of **Ex.1013B**. Page 3 is a screen capture of a Wayback Machine calendar that shows the archiving history of the webpage and indicates this particular copy was archived on “DEC 12 1998” and available at <https://web.archive.org/web/19981212030542/http://www.lib.berkeley.edu/>. Page 4

is the PDF of this archived copy that shows UCB offered several catalogs to users in 1998, including “UC Berkeley – Pathfinder or GLADIS.” Page 5 is a screen capture of a webpage archived on January 17, 1999, and available at <https://web.archive.org/web/19990117024322/http://sunsite2.berkeley.edu:8000/>.

Page 6 is the PDF of this archived copy that explains Pathfinder “is the Web-browsable online public access catalog of the University of California at Berkeley Library.”

85. Records in **Ex.1013B** confirm that UCB had an online catalog in place by late 1998 and early 1999, so in 2000 interested users would be able to use Pathfinder to discover *Li* and access the full text at the UCB Library.

C. Records of the Yale University Library

86. As further evidence of the public availability of *Li* in libraries, I obtained records for this book from the Yale University Library (“YUL”). **Ex.1013C** is a true and correct copy of the bibliographic and MARC records that I personally located, identified, and obtained from the online catalog of YUL. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

87. Page 1 of **Ex.1013C** is a screen capture of the top of the bibliographic record for *Li* from YUL’s online catalog. Page 2 is the PDF of this record that shows the title, ISBN, publisher, series, and editors. These details match the information

presented in **Ex.1013**, confirming this record represents *Li*. The bibliographic record also includes subject headings and the holdings area shows the book has a call number of “QC610.9 S47 63 (LC)” and is stored at the Library Shelving Facility. The “Added to Catalog” field shows this record was added to the online catalog of YUL on “June 01, 2002.”

88. Page 3 is the MARC record. The first six digits of Field 008 show the record was created on “991105” (*i.e.*, November 5, 1999). Subfield “a” of Field 040 shows “XRL” created the original MARC record, and subfield “d” shows “CtY” modified the record later. As discussed above, “XRL” is the OCLC library symbol for the HRL Laboratories Library in Malibu, California. According to the MARC Code List for Organizations (<https://www.loc.gov/marc/organizations/org-search.php>), “CtY” is the MARC code for the Sterling Memorial Library of the Yale University. Field 907 shows the record was added to the library catalog on “2002-06-01” (*i.e.*, June 1, 2002). Fields 040 and 907 inform my opinion that YUL used the XRL record for copy cataloging and added the copy cataloging record to their online catalog on June 1, 2002, making *Li* discoverable from that date on.

89. Field 020 shows the ISBN of *Li*. Field 245 shows the title and volume editors. Field 260 shows the publication and copyright date. Field 440 shows the series statement. The two volume editors are included in Field 700 to help users discover this book.

90. Subjects of this book are represented in Field 050 by a Library of Congress Classification (LCC) number of “QC612.S4” and in Fields 650 by two Library of Congress subject headings: Grinding and polishing, and Silicon. These subject representations enable users to conduct subject searches to discover this book.

91. The Yale MARC record for *Li* (Ex.1013C) was added to their online catalog on June 1, 2002, making this book discoverable at this library from that date on. As for June 1, 2002, interested users would be able to discover *Li* by the ISBN, title, series, and editors. They would also be able to discover this book by the LCC number and the Library of Congress subject headings assigned to this work. A customary library practice is to process a newly cataloged monograph promptly for public access, usually within a week after the cataloging work is completed. It is therefore my opinion that the physical copy of *Li*, after process, would become publicly accessible by June 8, 2002, at YUL.

92. As evidence that YUL had an online catalog in operation in 2002, I obtained a profile of the library at <https://librarytechnology.org/library/2280> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. It is the type of material experts in my field would reasonably rely upon when forming their opinions. This profile is presented as Ex.1013D in this declaration.

93. The Technology Profile on page 2 of Ex.1013D shows YUL began

using Voyager as its online catalog in 2001, and migrated to Alma in 2023. These dates mean that as of 2002 interested users were able to use the Voyager system of YUL to search for and access *Li*.

D. Copyright Registration Record

94. **Ex.1013E** is a true and correct copy of the copyright registration record for *Li*. I personally located, identified, and obtained this record from the public catalog of the US Copyright Office. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

95. The title, editors, imprint, and copyright claimant match the information presented in **Ex.1013**, confirming this record represents *Li*. The Date of Publication field shows this book was published on “1999-10-15” (*i.e.*, October 15, 1999), and the Registration Number / Date field shows the book was registered with the US Copyright Office on “1999-11-17” (*i.e.*, November 17, 1999). These dates align well with the February 20, 2000 “Adddate” in the UCB MARC record for *Li* (**Ex.1013A**) and the June 1, 2002 “Added to Catalog” date in the Yale MARC record (**Ex.1013C**).

E. Usage Records

96. Actual usage of a publication is reflected by the papers that make reference to it. I have reviewed citation history of *Li* on Google Scholar to compile a list of early citations. **Ex.1013F** presents five citations published in 2000, 2001, and

2002, and shows the earliest citation to *Li* appeared in 2000, supporting my opinion that this book became publicly accessible at UCB in March 2000, and became publicly accessible at YUL in June 2002.

F. Summary of My Opinion on *Li*

97. The excerpts of *Li* obtained from the University of Iowan Libraries (Ex.1013) is authentic because it contains no signs to raise suspicion about its authenticity, and this copy of *Li* is in the custody of an academic library. The MARC record for *Li* from UCB (Ex.1013A) shows this publication was added to the library collection on February 29, 2000, and the copy cataloging record was created on that day. The MARC record for *Li* from YUL (Ex.1013C) shows the library added this record to their online catalog on June 1, 2002, making *Li* discoverable in the online catalog of YUL from that date on. Citation records show the earliest citation was published in 2000.

98. Based on the records and documents I have reviewed and analyzed, it is my opinion that *Li* became publicly accessible at the University of California, Berkeley Library from February 29, 2000 on. In addition, this book became discoverable at the online catalog of the Yale University Library on June 1, 2002.

VI. AUTHENTICITY AND PUBLIC AVAILABILITY OF *VAN ZANT-1997* (EX.1014)

A. Authentication

99. Ex.1014 is a true and correct copy of excerpts of *Microchip*

Fabrication: A Practical Guide to Semiconductor Processing, (“*Van Zant-1997*”), by Peter Van Zant, 3rd edition, McGraw-Hill, 1996, that I obtained from the Library of Congress (“LC”). To ascertain the availability of *Van Zant-1997* in libraries, I researched information on libraries holding this book on WorldCat.org, the free web portal, and a WorldCat record at <https://search.worldcat.org/title/34514744> showed that LC was one of the holding libraries. After verifying the holdings information in the library’s online catalog, I obtained a scanned copy of excerpts of this book from LC through a document vendor. This copy of *Van Zant-1997* is presented as **Ex.1014** in this declaration.

100. Ex.1014 is a true and correct copy of excerpts of *Van Zant-1997*. Page 1 is the covers and spine of this book that show the title, subtitle, author, edition number (“Third Edition”), ISBN (“0-07-067250-4”), and call number label (“TK 7871.85 .V36 1997”). Page 2 is the title page that shows the same information as the front cover and includes information on the publisher. Page 3 is the copyright page that shows this book has a “1997” copyright date and the publisher holds the copyright. This page shows a record of “Library of Congress Cataloging-in-Publication Data” that shows “96-15729” as the Library of Congress Control number. This page also carries a date stamp of “Library of Congress DEC 11 1996 CIP” that indicates the library received this copy on December 11, 1996. Pages 5 to 11 (internal page vii to page xiii) are the table of contents that shows this book includes 18

chapters, each with its own bibliographical references, a Glossary, and an index. Pages 12 and 13 (internal pages xv and xvi) are the Preface to the Third Edition. Pages 14 to 24 are internal pages 5 to 15, and the rest of the pages are from various chapters.

101. This library copy of excerpts of *Van Zant-1997* (**Ex.1014**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the section included, and there are no visible alterations to the document. Furthermore, this copy of *Van Zant-1997* is in the custody of a national library. Based on my review and analysis, I see no reason to question the authenticity of this copy of *Van Zant-1997* (**Ex.1014**).

B. Library of Congress Records

102. To determine the public availability date of *Van Zant-1997*, I obtained records for this book from LC. **Ex.1014A** is a true and correct copy of the bibliographic and MARC records for *Van Zant-1997*. I personally identified, located, and obtained these records from the online catalog of LC. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

103. Pages 1 and 2 of **Ex.1014A** are the bibliographic record that shows the author, title, edition statement, publisher and copyright date, ISBN, and LCCN (Library of Congress Control Number). These details match the information presented in **Ex.1014**, confirming this record represents *Van Zant-1997*. The “Item

Availability” area shows LC has two copies and “TK7871.85 .V36 1997” is the call number. Interested users can request access at the “Jefferson or Adams Building Reading Rooms” and status of the copies is “Not Charged” (meaning available for user request).

104. Pages 3 and 4 are the MARC record for *Van Zant-1997*. The first six digits of Field 008 show the MARC record was created on “960326” (*i.e.*, March 26, 1996), and the “s1997” code following this creation date indicates this publication has a single publication date of 1997. Field 955 records local cataloging activities and shows a pre-publication record was created on “03-26-96” (*i.e.*, March 26, 1996), and the verification of this CIP (*i.e.*, Cataloging-in-Publication) record took place on “01-07-97” (*i.e.*, January 7, 1997). Subfield “a” of Field 040 shows that “DLC” created the original record. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), “DLC” is the OCLC library symbol for the Library of Congress. Fields 008, 955 and 040 inform my opinion that LC created the original MARC record for *Van Zant-1997* on March 26, 1996, before the book was published. After the book was published, LC completed their cataloging work on January 7, 1997. A customary library practice is to process a newly cataloged monograph promptly for public access, usually within a week after the cataloging work is completed. My personal experience with the collections at the Library of Congress is that it can take one to three months for a newly cataloged monograph to

become publicly accessible. It is therefore my opinion that, after processing, the physical copy of *Van Zant-1997* became publicly accessible at LC no later than April 7, 1997.

105. Field 010 of the MARC record shows the Library of Congress Control Number and Field 020 show the ISBN of this book. Field 100 shows the author, Field 245 shows the title, subtitle, and statement of responsibility, Field 250 shows the edition statement, and Field 260 shows the publisher and the copyright date. Field 300 shows the physical description. Field 504 shows a note of bibliographical references and index.

106. Subjects of this book are represented in Field 050 by a Library of Congress Classification (LCC) number of “TK7871.85” that represents general works on “Semiconductors” (source: Library of Congress Classification, Schedule T, at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf), and in Field 082 by a Dewey Decimal Classification (DDC) number of “621.3815/2” representing “Semiconductors) (source: WebDewey at <https://dewey.org/webdewey/login/login.html> , subscription required for access). Subjects are also represented in Fields 650 by two Library of Congress subject headings: Semiconductors |x Design and construction (“|x” indicates a topical subheading), and Integrated circuits |x Design and construction. These subject representations enable users to conduct subject searches to discover *Van Zant-1997*.

107. This MARC record (**Ex.1014A**) shows that LC completed the cataloging work for *Van Zant-1997* on January 7, 1996, making this book discoverable in the LC online catalog from that date on. Interested public would be able to conduct subject searches by the LCC number, DDC number and the Library of Congress subject headings in the MARC record to discover this book. They would also be able to search for this book by the author, title, ISBN, and LCCN. The physical copy of *Van Zant-1997*, after processing, would become publicly accessible by April 7, 1997.

108. As evidence that the Library of Congress had an online catalog in operation in 1997 when the library's MARC record for *Van Zant-1997* became discoverable, I obtained a copy of "LOCIS: Library of Congress Information System" archived by Internet Archive. I personally located, identified, and obtained this profile. This is the type of record experts in my field would reasonably rely upon when forming their opinions. This archived copy is presented as **Ex.1014B** in this declaration.

109. Page 1 is a screen capture of a Wayback Machine calendar that shows this webpage was archived 75 times between 1997 and 2021, and this particular copy was archived on "May 24 1997" and available at <https://web.archive.org/web/19970524160715/http://library.usask.ca/hytnet/us3/us373.html>. Page 2 is a PDF of the archived webpage that shows that by May 1997

interested users would be able to telnet into the Library of Congress Information System that includes their catalog. Telnet is a network protocol that supports users to access remote systems on the Internet or other local area networks (source: Telnet at <https://en.wikipedia.org/wiki/Telnet>). **Ex.1014B** confirms that by May 1997 interested users were able to log into the Library of Congress online catalog on the Internet to discover *Van Zant-1997*.

C. Copyright Registration Record

110. **Ex.1014C** is a true and correct copy of the copyright registration record for *Van Zant-1997*. I personally located, identified, and obtained this record from the public catalog of the US Copyright Office. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

111. The title, author, edition number, publisher, copyright date, and copyright claimant match the information presented in **Ex.1014**, confirming this record represents *Van Zant-1997*. The Date of Publication field shows this book was published on “1996-11-25” (*i.e.*, November 25, 1996). The publication date aligns well with the “DEC 11 1996” date stamp date on the LC copy of *Van Zant-1997* (**Ex.1014**), and the “01-07-1997” cataloging record completion date at LC (**Ex.1014A**).

D. Records of the University of Michigan Library

112. As further evidence that *Van Zant-1997* is available at libraries, I

obtained records from the University of Michigan Library (“UM”). **Ex.1014D** is a true and correct copy of the bibliographic and MARC records for *Van Zant-1997* that I personally located, identified, and obtained from the online catalog of UM. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

113. Pages 1 and 2 are the bibliographic record that shows the author, title, subtitle, publisher, copyright date, edition statement, bibliography note, and ISBN. These details match the information presented in **Ex.1014**, confirming this record represents *Van Zant-1997*. The bibliographic record also includes physical description, format, language, and subjects. The “Available at” area shows this book is on shelf and its call number is “TK 7871.85 .V36911.”

114. Page 3 is the MARC record. The first six digits of Field 008 show the record was created on “961209” (*i.e.*, December 9, 1996), and the code of “s1997” following the record creation date indicates this book has a single publication date of 1997. Subfields “a” and “c” of Field 040 show DLC created the original record, and subfield “d” shows “EYM” modified the record later. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), “DLC” is the OCLC library symbol for the Library of Congress, and “EYM” is the OCLC library symbol for the University of Michigan Library. Field 974 is a local note field that shows the record was created on “1996-12-10” (*i.e.*, December 10, 1996). Fields 008,

040 and 974 inform my opinion that UM used the LC record for copy cataloging and added the copy cataloging record to their online catalog on December 10, 1996, making *Van Zant-1997* discoverable from that date on.

115. Since the UM MARC record (**Ex.1014D**) is based on the LC MARC record (**Ex.1014A**), the two records have many data elements in common, including the Library of Congress Control Number in Field 010, ISBN in Field 020, author in Field 100, title in Field 245, edition statement in Field 250, publisher and copyright date in Field 260, physical description in Field 300, and a note on bibliographic reference and index in Field 504. They also have the same LCC number. One difference is the LC MARC record includes two subject headings, while the UM MARC record includes only one subject heading, but it is the same as the one included in the LC MARC record.

116. The UM MARC record (**Ex.1014D**) was added to the library's online catalog on December 10, 1996, making *Van Zant-1997* discoverable from that date on. Interested users would be able to discover this book by the LCCN, ISBN, author, and title. They would also be able to conduct subject searches to discover this book.

117. As evidence that UM had an online catalog in operation in 1996, I obtained a profile of the library at <https://librarytechnology.org/library/2089> from libraries.org, a directory of libraries throughout the world. I personally located, identified, and obtained this profile. It is the type of material experts in my field would

reasonably rely upon when forming their opinions. This profile is presented as **Ex.1014E** in this declaration.

118. The Technology Profile on page 2 of **Ex.1014E** shows UM began using NOTIS in 1987, migrated to Aleph 500 in 2002, and migrated again in 2019 to Alma. These dates mean that as of December 1996 interested users were able to use the NOTIS system at UM to discover and access *Van Zant-1997*.

E. Usage Records

119. Usage of a publication is shown by other publications that make reference to it. I used Google Scholar to review citations to *Van Zant-1997* and compile a list of early citations. **Ex.1014F** is a true and correct copy of the citations I selected. It shows seven citations published in 1998 and 1999, including the earliest citation that appeared in January 1998.

F. Summary of My Opinion on *Van Zant-1997*

120. The copy of excerpts of *Van Zant-1997* obtained from LC (**Ex.1014**) is authentic because it contains no signs to raise suspicion about its authenticity, and this copy of *Van Zant-1997* is in the custody of a national library. The LC MARC record for this book (**Ex.1014A**) shows the library completed their cataloging work on January 7, 1997, making this book discoverable from that date on in their online catalog. The copyright registration record (**Ex.1014C**) shows *Van Zant-1997* was published on November 25, 1996. MARC record for this book from UM (**Ex.1014D**)

shows the record was added to their online catalog on December 10, 1996, making this book discoverable from that date on in their online catalog. Citation records (Ex.1014F) show the earliest citation to *Van Zant-1997* appeared in January 1998.

121. Based on the documents and records I have reviewed and analyzed, it is my opinion that *Van Zant-1997* was publicly discoverable by January 7, 1997, at the Library of Congress, and the physical copy, after processing, would become publicly accessible by April 7, 1995. This book became discoverable in the online catalog of the University of Michigan Library on December 10, 1996, and the physical copy, after processing, would become publicly accessible by December 17, 1996, at this library.

VII. AUTHENTICITY AND PUBLIC AVAILABILITY OF *VAN ZANT-2004* (EX.1015)

A. Authentication

122. Ex.1015 is a true and correct copy of excerpts of *Microchip Fabrication: A Practical Guide to Semiconductor Processing*, (“*Van Zant-2004*”), by Peter Van Zant, 5th edition, McGraw-Hill, 2004, that I obtained from the Library of Congress (“LC”). To ascertain the availability of *Van Zant-2004* in libraries, I researched information on libraries holding this book on WorldCat.org, the free web portal, and a WorldCat record at <https://search.worldcat.org/title/54857930> showed that LC was one of the holding libraries. After verifying the holdings information in the library’s online catalog, I obtained a scanned copy of excerpts of this book from

LC through a document vendor. This copy of *Van Zant-2004* is presented as **Ex.1015** in this declaration.

123. **Ex.1015** is a true and correct copy of excerpts of *Van Zant-2004*. Page 1 is the cover that shows the title, edition number, and author. Page 2 is the back cover and the spine that show that the Library of Congress holds this publication and its call number is “TK 7871.85 .V36 2004 Copy 2.” The back cover shows the book’s ISBN is “0-07-143241-8.” Page 3 is the half title page, and page 4 is the title page that shows the title, subtitle, author, edition number and publisher. Page 5 is the copyright page that shows this book has a “2004” copyright date and the publisher holds the copyright. It shows a record of “Library of Congress Cataloging-in-Publication Data” that shows “2004040298” as the Library of Congress Control number. This page also carries a date stamp of “Library of Congress JUN 08 2004 Copyright Office” that indicates the library received this copy on June 8, 2004. Pages 6 to 11 (internal page vii to page xii) are the table of contents that shows this book includes 18 chapters, each with its section of bibliographical references, a Glossary, and an index. Pages 12 to 14 are internal pages 6, 7, and 72.

124. This library copy of excerpts of *Van Zant-2004* (**Ex.1015**) is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages in the section included, and there are no visible alterations to the document. Furthermore, this copy of *Van Zant-2004* is in the

custody of a national library. Based on my review and analysis, I see no reason to question the authenticity of this copy of excerpts of *Van Zant-2004* (**Ex.1015**).

B. Library of Congress Records

125. To determine the public availability date of *Van Zant-2004*, I obtained LC records for this book. **Ex.1015A** is a true and correct copy of the bibliographic and MARC records for *Van Zant-2004*. I personally identified, located, and obtained these records from the online catalog of LC. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

126. Pages 1 and 2 of **Ex.1014A** are the bibliographic record that shows the author, title, edition statement, publisher and copyright date, ISBN, and LCCN (Library of Congress Control Number). These details match the information presented in **Ex.1015**, confirming this record represents *Van Zant-2004*. The “Item Availability” area shows LC has two copies and “TK7871.85 .V36 2004” is the call number. Interested users can request access at the “Jefferson or Adams Building Reading Rooms” and at the Reference Service at the Science & Business Reading Room of the Adams Building. The status of the copies is “Not Charged” (meaning available for user request).

127. Pages 3 and 4 are the MARC record for *Van Zant-2004*. The first six digits of Field 008 show the MARC record was created on “040325” (*i.e.*, March 25, 2004). Field 955 records local cataloging activities and shows a pre-publication

record was created on “2004-03-25” (*i.e.*, March 25, 2004), and the book, after it was published, was sent to the library for CIP record verification (*i.e.*, Cataloging-in-Publication) on “2004-06-23” (*i.e.*, June 23, 2004). Field 955 shows the library completed its cataloging work on *Van Zant-2004* and sent it to BCCD (Binding and Collections Care Division) for processing on “2004-09-23” (*i.e.*, September 23, 2004). Subfield “a” of Field 040 shows that “DLC” created the original record. According to the Directory of OCLC Members (<https://www.oclc.org/en/contacts/libraries.html>), “DLC” is the OCLC library symbol for the Library of Congress. Fields 008, 955 and 040 inform my opinion that LC completed the original MARC record for *Van Zant-2004* on September 23, 2004, and sent the book to processing on the same day. A customary library practice is to process a newly cataloged monograph promptly for public access, usually within a week after the cataloging work is completed. My personal experience with the collections at the Library of Congress is that it can take one to three months for a newly cataloged monograph to become publicly accessible. It is therefore my opinion that, after processing, the physical copy of *Van Zant-2004* became publicly accessible at LC no later than December 23, 2004.

128. Field 010 of the MARC record shows the Library of Congress Control Number and Field 020 show the ISBN of this book. Field 100 shows the author, Field 245 shows the title, subtitle, and statement of responsibility, Field 250 shows the

edition statement, and Field 260 shows the publisher and the copyright date. Field 300 shows the physical description. Field 504 shows a note of bibliographical references and index.

129. Subjects of this book are represented in Field 050 by a Library of Congress Classification (LCC) number of “TK7871.85” that represents general works on “Semiconductors” (source: Library of Congress Classification, Schedule T, at https://www.loc.gov/aba/publications/FreeLCC/LCC_T2019TEXT.pdf), and in Field 082 by a Dewey Decimal Classification (DDC) number of “621.3815/2” representing “Semiconductors) (source: WebDewey at <https://dewey.org/webdewey/login/login.html>, subscription required for access). Subjects are also represented in Fields 650 by two Library of Congress subject headings: Semiconductors |x Design and construction (“|x” indicates a topical subheading), and Integrated circuits |x Design and construction. These subject representations enable users to conduct subject searches to discover *Van Zant-2004*.

130. This MARC record (**Ex.1015A**) shows that LC completed the cataloging work for *Van Zant-2004* on September 23, 2004, making this book discoverable in the LC online catalog from that date on. As of that date, interested public would be able to conduct subject searches by the LCC number, DDC number and the Library of Congress subject headings in the MARC record to discover this book. They would also be able to search for this book by the author, title, ISBN, and

LCCN. The physical copy of *Van Zant-2004*, after processing, would become publicly accessible by December 23, 2004.

131. As evidence that the Library of Congress had an online catalog in operation in 2004 when the library's MARC record for *Van Zant-2004* became discoverable, I obtained a copy of the library from libraries.org, a directory of libraries throughout the world. This record is available at <https://librarytechnology.org/library/2263>. I personally located, identified, and obtained this profile. This is the type of record experts in my field would reasonably rely upon when forming their opinions. This record is presented as **Ex.1015B** in this declaration.

132. The Technology Profile on page 2 of **Ex.1015B** shows the library began using Voyager as their online catalog in 1998 and migrated to FOLIO – EBSCO Information Services in 2023. These dates mean that in 2004 users would be able to use the Voyager system at the Library of Congress to discover and access *Van Zant-2004*.

C. Copyright Registration Record

133. **Ex.1015C** is a true and correct copy of the copyright registration record for *Van Zant-2004*. I personally located, identified, and obtained this record from the public catalog of the US Copyright Office. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

134. The title, author, edition number, publisher, copyright date, and copyright claimant match the information presented in **Ex.1015**, confirming this record represents *Van Zant-2004*. The Date of Publication field shows this book was published on “2004-04-06” (*i.e.*, April 6, 2004). The publication date aligns well with the “JUN 8 2004” date stamp date on the LC copy of *Van Zant-2004* (**Ex.1015**), and the September 2004 cataloging record completion date at LC (**Ex.1015A**).

D. Records of the University of California, Berkeley Library

135. As further evidence that *Van Zant-2004* is available at libraries, I obtained records from the University of California, Berkeley Library (“UCB”). **Ex.1015D** is a true and correct copy of the bibliographic and MARC records for *Van Zant-2004* that I personally located, identified, and obtained from the online catalog of UCB. They are the type of records experts in my field would reasonably rely upon when forming their opinions.

136. Pages 1 to 3 are the bibliographic record that shows the title, author, edition statement, publisher, copyright date, creation date, a note on bibliography and index, and ISBNs. These details match the information presented in **Ex.1015**, confirming this record represents *Van Zant-2004*. The bibliographic record also includes physical description, and subjects. The “Locations” area shows this book is available at the Engineering & Mathematical Sciences library, and its call number is “TK 7871.85 .V36 2004.” Another copy is stored at the Northern Regional Library

Facility with the same call number.

137. Page 4 is the MARC record. The first six digits of Field 008 show the record was created on “040325” (*i.e.*, March 25, 2004). Subfields “a” and “c” of Field 040 show DLC (*i.e.*, Library of Congress) created the original record. Field 968 is a local note field and the “Adddate” element in this field shows *Van Zant-2004* was added to the library collections on “040625” (*i.e.*, June 25, 2004). Field 996 subfield “d” shows the “CatDate” (cataloging date) was “06-25-04” (*i.e.*, June 25, 2004). Fields 008, 040, 968, and 996 inform my opinion that UCB used the LC record for copy cataloging and added the copy cataloging record to their online catalog on June 25, 2004, making *Van Zant-2004* discoverable from that date on.

138. Since the MARC record from UCB (**Ex.1015D**) is based on the LC MARC record (**Ex.1015A**), the two records have many data elements in common, including the Library of Congress Control Number in Field 010, ISBN in Field 020, author in Field 100, title in Field 245, edition statement in Field 250, publisher and copyright date in Field 260, physical description in Field 300, and a note on bibliographic reference and index in Field 504. One difference is the UCB record includes a contents note in Field 505. These two library records also have the same LCC number and the same topical subject headings.

139. The MARC record from UCB (**Ex.1015D**) was added to the library’s online catalog on June 25, 2004, making *Van Zant-2004* discoverable from that date

on. Interested users would be able to discover this book by the LCCN, ISBN, author, and title. They would also be able to conduct subject searches to discover this book.

140. As evidence that UCB had an online catalog in operation in 2004 when *Van Zant-2004* became discoverable, I obtained an archived copy of the library's online catalog from the Internet Archive. **Ex.1015E** is a true and correct copy of the library's online catalog archived by the Internet Archive on April 3, 2004, available at <https://web.archive.org/web/20040403221441/http://sunsite2.berkeley.edu:8000/>. I personally located, identified, and obtained this record, and used a screen capture to produce this exhibit. This is the type of record experts in my field would reasonably rely upon when forming their opinions.

141. The top of **Ex.1015E** shows a Wayback Machine calendar that shows this webpage was archived by the Internet Archive 185 times, and this particular copy was captured on April 3, 2004. This exhibit shows Pathfinder as the name of the UCB Library Catalog in April 2004, and users could search the catalog by title keyword, title phrase, personal author phrase, subject keyword, corporate author keyword, conference keyword and call number phrase. Pathfinder also supported users to limit the search results by location and format. **Ex.1015E** informs my opinion that in 2004 interested users would be able to use Pathfinder, the UCB Library Catalog, to discover and access *Van Zant-2004*.

E. Summary of My Opinion on *Van Zant-2004*

142. The copy of excerpts of *Van Zant-2004* obtained from LC (**Ex.1015**) is authentic because it contains no signs to raise suspicion about its authenticity, and this copy of *Van Zant-2004* is in the custody of a national library. The MARC record for this book from LC (**Ex.1015A**) shows the library completed their cataloging work for this book on September 23, 2004, making this book discoverable from that date on in their online catalog. The copyright registration record (**Ex.1015C**) shows *Van Zant-2004* was published on April 6, 2004. The MARC record for this book from UCB (**Ex.1015D**) show the record was added to their online catalog on June 25, 2004, making this book discoverable from that date on in their online catalog.

143. Based on the documents and records I have reviewed and analyzed, it is my opinion that *Van Zant-2004* was publicly discoverable by September 23, 2004, at the Library of Congress, and the physical copy, after processing, would become publicly accessible by December 23, 2004. This book became discoverable in the online catalog of the University of California, Berkeley Library on June 25, 2004, and the physical copy, after processing, would become publicly accessible by July 2, 2004, at this library.

VIII. CONCLUSION

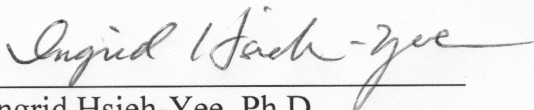
144. In signing this Declaration, I recognize that the Declaration will be filed as evidence in a contested case before the Patent Trial and Appeal Board of the United

States Patent and Trademark Office. I also recognize that I may be subject to cross-examination in this proceeding. If required, I will appear for cross-examination at the appropriate time.

145. I hereby declare that all statements made herein of my own knowledge are true and that all statements are made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under 18 U.S.C. §1001.

Dated: June 4, 2025

Respectfully submitted,


Ingrid Hsieh-Yee, Ph.D.
Annapolis, Maryland

APPENDIX A

Ingrid Hsieh-Yee
Professor Emerita
Dept. of Library and Information Science
Catholic University of America
Washington, D.C. 20064
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Education

Ph.D. 1990. Library and Information Studies, University of Wisconsin-Madison
Minors: Sociology and Psychology

M.A. 1984. Library and Information Studies, University of Wisconsin-Madison.

M.A. 1983. Comparative Literature, University of Wisconsin-Madison.

B.A. 1980. Foreign Languages and Literature, National Taiwan University.

Work Experience

Professor, School/Dept. of Library and Information Science, Catholic University of America,
1990-2022 (Assistant Professor, 1990-1996; Associate Professor, 1997-2004; Professor
2004-2022; Professor Emerita 2022)

Co-Chair, Dept. of Library and Information Science, Catholic University of America, June 2015-
August 2016.

Acting Dean, School of Library and Information Science, Catholic University of America,
January 2010-June 2012.

Cataloger, Dept. of Legislative Reference Library, Annapolis, Maryland, 1989-1990.

Lecturer, School of Library and Information Studies, University of Wisconsin-Madison, 1988.

Teaching Assistant, School of Library and Information Studies, University of Wisconsin-
Madison, 1986-1988.

Cataloger, Health Sciences Library, University of Wisconsin-Madison, 1984-1986.

Areas of Teaching and Research Interests

Information Organization and Access; Metadata; Cataloging & Classification; Information
Architecture; Information Retrieval; Digital Collections; Social Media; Scholarly

Communication; Information Behavior; Health Informatics; Human Computer Interaction; Usability Studies

Grants & Honors

Cultural Heritage Information Management Project. IMLS grant. Amount: \$498,741. Period: Aug. 2012 to July 2015. Co-PI with Dr. Youngok Choi.

D.C. Health Information Technology (HIT4): Building Capacity & Providing Access in Our Nation's Capital. Dept. of Labor H2B Training Grant. Grant amount: \$4,175,500. Grant period: Nov. 2011 to Dec. 2015. Partner with the Metropolitan School of Professional Studies of the Catholic University of America, Children's National Medical Center, D.C. Department of Employment Services, Holy Cross Hospital, Howard University, Center for Urban Progress, Providence Hospital, and Sibley Memorial Hospital.

Capital Health Careers Project. Department of Labor Healthcare Sector and Other High Growth and Emerging Industries Grant. Grant amount: \$4,953,999. Grant period: March 2010 – February 2013. Awarded to a group of healthcare organizations and educational institutions in Washington, D.C. Providence Health Foundation of Providence Hospital (Lead institution). Part of the grant supported the development of a Master's degree program in Information Technology with a concentration in Health Information Technology offered by the School of Library and Information Science.

The Washington D.C. School Librarians Project. IMLS grant. Grant amount: \$412,660. Grant period: Aug. 2007 – June 2011. The School partnered with the District of Columbia Public Schools (DCPS) and the District of Columbia Library Association to educate and mentor school media specialists for the DCPS system. PI, Jan. 2010 to June 2011.

SIG Member of the Year, American Society for Information Science and Technology (2009).

Most Outstanding Paper of *OCLC Systems & Services* (2001).

ALISE Research Grant (2001).

Most Outstanding Paper of *OCLC Systems & Services* (2000).

Research Grant from ERIC (1999-2000).

Best Research Paper Award; Association for Library and Information Science Education (1998).

Research Grants, Catholic University of America. 1991, 1992, 1993, 1996, 1998, 1999, 2004, 2005, 2006, 2007, 2013-14.

Cooperative Faculty Research Grant, Consortium of Universities in the Washington Metropolitan Area (1993-1994).

Cooperative Research Grant, Council on Library Resources (1993-1994).

Journal of the American Society for Information Science Best Paper Award (1993).

ASIS/ISI Information Science Doctoral Dissertation Scholarship (1989).

HEA Title IIB Fellowship (Dept. of Education) (1989)

Chinese-American Librarians Association Scholarship (1987).

Beta Phi Mu (1985).

Vilas Fellowship, University of Wisconsin-Madison. 1984

Publications

Hsieh-Yee, I. (2021). Can We Trust Social Media? *Internet Reference Services Quarterly*, 1-15.
Published online: 28 July, 2021. 10.1080/10875301.2021.1947433.

Bailey, T., & Hsieh-Yee, I. (2020). Combating the Sharing of False Information: History, Framework & Literacy Strategies, *Internet Reference Services Quarterly*, 24 (1-2), 9-30.

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Hsieh-Yee, I. (2008). Educating Cataloging Professionals in a Changing Information Environment. *Journal of Education for Library and Information Science*, 46(2): 93-106.

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Choi, Y., Hsieh-Yee, I., and Kules, B. (2007). Retrieval Effectiveness of TOC and LCSH. *Proceedings of the Joint Conference on Digital Libraries*, pp. 233-234.

Vellucci, S., and Hsieh-Yee, I. (2007). They Didn't Teach Me That in Library School! Building

a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research. *Proceedings of the National Conference of the Association of College and Research Libraries, Baltimore, MD*, pp. 26-31.

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Tang, R., Hsieh-Yee, I., and Zhang, S. (2007). User Perceptions of MetaLib Combined Search: An Investigation of How Users Make Sense of Federated Searching." *Internet Reference Services Quarterly*, 12(12): 211-236.

Hsieh-Yee, I., Tang, R., and Zhang, S. (2006). User Perceptions of a Federated Search System. *Proceedings of the Joint Conference on Digital Libraries, June 11-15, 2006, Chapel Hill*, p. 338.

Hsieh-Yee, I. (2006). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide*. 2nd ed. Westport, Conn.: Libraries Unlimited.

NISO A Framework of Guidance for Building Good Digital Collections. 2nd ed. Bethesda, MD: National Information Standards Organization, 2004. Framework Advisory Group: Grace Agnew, Liz Bishoff, Priscilla Caplan (Chair), Rebecca Gunther and Ingrid Hsieh-Yee.

Hsieh-Yee, I. (2004). Cataloging and Metadata Education in North American LIS Programs. *Library Resources & Technical Services*, 48(1): 59-68.

Hsieh-Yee, I. (2004). Cataloging and Metadata Education. In Gary E. Gorman (Ed.), *International Yearbook of Library and Information Management 2003: Metadata Applications and Management*, (pp.204-234). London: Facet Publishing.

Yee, P. L., Hsieh-Yee, I., Pierce, G.R., Grome, R., and Schantz, L. (2004). Self-Evaluative Intrusive Thoughts Impede Successful Searching on the Internet. *Computers in Human Behavior*, 20(1): 85-101.

Hsieh-Yee, I. (2003). Cataloging and Metadata Education: A Proposal for Preparing Cataloging Professionals of the 21st Century. A report submitted to the ALCTS-Education Task Force in response to Action Item 5.1 of the *Bibliographic control of Web Resources: A Library of Congress Action Plan*. Approved by the Association for Library Collections and Technical Services. Web version available since April 2003 at <http://lcweb.loc.gov/catdir/bibcontrol/CatalogingandMetadataEducation.pdf>.

- Hsieh-Yee, I. (2002). Cataloging and Metadata Education: Asserting a Central Role in Information Organization. *Cataloging & Classification Quarterly* 34(½): 203-222.
- Hsieh-Yee, I., and Smith, M. (2001). The CORC Experience: Survey of Founding Libraries, Part I. *OCLC Systems & Services*, 17: 133-140. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2001" award.)
- Hsieh-Yee, I., and Smith, M. (2001). The CORC Experience: Survey of Founding Libraries, Part II, Automated Tools and Usage. *OCLC Systems & Services*, 17: 166-177. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2001" award.)
- Hsieh-Yee, I. (2001). ERIC User Services: Changes and Evaluation for the Future. *Government Information Quarterly*, 18: 31-42.
- Hsieh-Yee, Ingrid. (2001). Research on Web Search Behavior. *Library and Information Science Research*, 23: 167-185.
- Logan, E., and Hsieh-Yee, I. (2001). Library and Information Science Education in the Nineties. *Annual Review of Information Science and Technology*, 35: 425-477.
- Hsieh-Yee, I. (Ed.) (2001). *Library and Information Science Research*, 23 (2). A special issue in honor of the retirement of Douglas L. Zweizig.
- Hsieh-Yee, I. (2000). *ERIC User Services: Evaluation in a Decentralized Environment*. Washington, D.C.: Dept. of Education.
- Hsieh-Yee, Ingrid. (2000). *Organizing Audiovisual and Electronic Resources for Access: A Cataloging Guide*. Littleton, CO: Libraries Unlimited.
- Hsieh-Yee, I. (2000). Organizing Internet Resources: Teaching Cataloging Standards and Beyond. *OCLC Systems & Services*, 16: 130-143. (Received "The Most Outstanding Paper of OCLC Systems & Services in 2000" award.)
- Hsieh-Yee, I. (1998). The Retrieval Power of Selected Search Engines: How Well Do They Address General Reference Questions and Subject Questions? *Reference Librarian*, 60: 27-47.
- Hsieh-Yee, I. (1998). Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study. *Reference Librarian*, 60: 61-85. (Received the 1997 Best ALISE Research Paper Award.)
- Hsieh-Yee, I. (1997). Access to OCLC and Internet Resources: LIS Educators' Views and Teaching Practices. *RQ*, 36: 569-86.

- Hsieh-Yee, I. (1997). Teaching Online and CD-ROM Resources: LIS Educators' Views and Practices. *Journal of Education for Library and Information Science*, 38: 14-34.
- Hsieh-Yee, I. (1996). The Cataloging Practices of Special Libraries and Their Relationship with OCLC. *Special Libraries*, 87: 10-20.
- Hsieh-Yee, I. (1996). Modifying Cataloging Practice and OCLC Infrastructure for Effective Organization of Internet Resources. In *Proceedings of the OCLC Internet Cataloging Colloquium*. [Online]. Available: <http://www.oclc.org/oclc/man/colloq/hsieh.htm>
- Hsieh-Yee, I. (1996). Student Use of Online Catalogs and Other Information Channels. *College & Research Libraries*, 57: 161-175.
- Hsieh-Yee, I. (1995). Ten entries in James S. C. Hu (Ed.), *Encyclopedia of Library & Information Science*, 913, 1028-29, 1036, 1037, 1145-46, 1514, 1575, 1763-64, 2216-27, 2378-79. Taipei, Taiwan: Sino-American Publishing. (Topics include "Advanced Technology/Libraries," "Information Ethics," "Instruction on Cataloging and Classification," "Instruction on Reference Services.")
- Hsieh-Yee, I. (1993). Effects of Search Experience and Subject Knowledge on Online Search Behavior: Measuring the Search Tactics of Novice and Experienced Searchers. *Journal of the American Society for Information Science*, 44: 161-174. (Received the 1993 Best JASIS Paper Award.)

Works in Progress

- Hsieh-Yee, I. Actionable lessons for debunking false information: A comparative analysis of literacy lessons in communication and library and information science
- Hsieh-Yee, I. Representing diverse voices and communities in cataloging and indexing: The evolution of controlled vocabularies
- Hsieh-Yee, I. Information Organization and Retrieval in Practice (a monograph scheduled for completion and publication in 2023)

Presentations

- Bailey, T. & Hsieh-Yee, I. (February 2020). The Phenomena of Sharing Misinformation and the Need for Information Literacy. Presented at the 2020 Bridging the Spectrum Symposium, Washington, D.C., February 14, 2020.

- Hsieh-Yee, I. and Fragan-Fly, J. (May 2018) *Trends, Design & Strategies for Digital Scholarship Services*. Presented at the 2018 Maryland/Delaware Library Association Conference, Cambridge, MD.
- Hsieh-Yee, I. (February, 2018) *Research Data Management: What It Takes to Succeed*. Presented at the 10th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (February, 2017) *Research Data Management: New Competencies and Opportunities for Information Professionals*. Presented at the 9th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. and Lawton, P. (February, 2017) *Enhancing Catholic Portal Searches with User Terms and LCSH*. Presented at the 9th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (2016, October) *Visualizing Data for Information*. Presented at the 2016 Virginia Library Association Conference, Hot Springs, VA.
- Hsieh-Yee, I. (2016, August) *Religious Materials Toolbox for Archivists: Solutions to Problems Facing the Profession*. Presented at Archives * Records 2016, Atlanta, GA.
- Hsieh-Yee, I. and Lawton, P. (2016, March) *Enhancing Retrieval of Catholic Materials with LCSH Knowledge Structure*. Presented at the 2016 Catholic Library Association Conference, San Diego, CA.
- Fagan-Fry, J. and Hsieh-Yee, I. (2016, February) *Approaches to Digital Scholarship at Top Universities around the World: Scholarly Publishing in the Digital Age*. Presented at the 8th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee and Fagan-Fry, J. (2016, January) *Innovative Services for Digital Scholarship at Top 100 Research Libraries of the World*. Poster presented at the 2016 Annual Conference of the Association for Library and Information Science Education, Boston, Mass.
- Hsieh-Yee, I. and Lawton, P. (2015, June). *Crowdsourcing terms for CRRA portal themes*. Poster presented at the third CRRA symposium and annual meeting, Bringing the created toward the Creator: Liturgical art and design since Vatican II. Catholic Theological Union, Chicago, Illinois.
- Hsieh-Yee, I. and Lawton, P. (2015, February). *Crowdsourcing terms for thematic exploration in the Catholic Portal*. Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I., James, R., and Fagan-Fry, J. (2015, February). *Support for digital scholarship at top university libraries of the world*. Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.

- Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2015, February). *Thus said the end users: Summon experience and support for research workflows*. Poster presented at the 7th Annual Bridging the Spectrum Symposium, Washington, D.C.
- Yontz, E., Hsieh-Yee, I., & Houston, S. (2015, February). *Healthy Heroes Summer Reading Club: Developing healthy youth at public libraries*. 11th Annual Jean Mills Health Symposium, Greenville, North Carolina.
- Yontz, E., Hsieh-Yee, I., and Houston, S. (2015, January). *Healthy youth and libraries: A pilot study*. Association for Library & Information Science Education (ALISE) Annual Conference, Chicago, Illinois.
- Hsieh-Yee, I. (2014, May). *Linking CRRA resources to portal themes via authority files*. Presented at the Catholic Research Resources Alliance 2014 Membership Meeting, Marquette, WI.
- Hsieh-Yee, I. (2014, April). *Enhancing subject access to CRRA resources*. Presented at the 2014 Catholic Library Association Conference, Pittsburgh, PA.
- Hsieh-Yee, I. (2014, January). *Health Information Technology Program: Educational entrepreneurship in action*. Presented at the 2014 annual Conference of the Association for Library and Information Science Education, Philadelphia, PA.
- Hsieh-Yee, I., Zhang, S., Lin, K., and Cherry, S. (2014, January). *Discovering information through Summon: An analysis of user search strategies and search success*. Paper presented at the 6th Bridging the Spectrum Symposium, Washington, D.C.
- Hsieh-Yee, I. (2012, December). *National Digital Stewardship Alliance and SLIS at CUA: An Educational Partnership*. Paper presented at Best Practices Exchange: Acquiring, Preserving, and Providing Access to Government Information in the Digital Era, Annapolis, MD.
- Choi, Y. and Hsieh-Yee, I. (2010, January). *Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes*. Paper presented at 2nd Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. and Coogan, J. (2010, January). *Google Scholar vs. Academic Search Premier: What Libraries and Searchers Need to Know*. Paper presented at 2nd Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2009, November). *Information Science Education: An LIS School's Perspective*. Paper presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada.

- Hsieh-Yee, I., Menard, E., Ya-Ning Chen, A., Shu-Jiun Chen, S., Kalfatovic, M. R., Wisser, K. M. (2009, November). *Information Organization in Libraries, Archives and Museums: Converging Practices and Collaboration Opportunities*. Presented at Annual Meeting of the American Society for Information Science and Technology, Vancouver, British Columbia, Canada. (Organizer and moderator of this panel.)
- Hsieh-Yee, I. and Coogan, J. (2009, July). *Catching up to Google Scholar: The Retrieval Power of Academic Search Premier and Google Scholar*. Poster presented at American Library Association Conference, Chicago, Illinois.
- Hsieh-Yee, I., with the CUA Scholarly Communications Project Team. (2009, January). *Digital Scholarship@CUA: Developing an Institutional Repository for CUA*. Poster presented at 1st Annual Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Wise, M., Cylke, K., and Hsieh-Yee, I. (2009, January). *Digital Talking Books: Meeting the Needs of the Blind and the Handicapped*. Paper presented at the Bridging the Spectrum Symposium, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2009, January). *User Expectations of MERIC*. Presented at the Information Organization Competencies for the 21st Century Discussion Session of the 2009 Conference of the Association for Library and Information Science Education, Denver, Colorado.
- Choi, Y., and Hsieh-Yee, I. (2008, November). *Subject Access for Images in an OPAC*. Annual Meeting of the American Society for Information Science and Technology, Columbus, Ohio. (Also co-organized a panel on Retrieving and Using Visual Resources: Challenges and Opportunities for Research and Education.)
- Hsieh-Yee, I. (2008, June). *Educating Cataloging Professionals in a Changing Information Environment*. National Taiwan University, Taipei, Taiwan.
- Vellucci, S. L., Moen, W.E., Hsieh-Yee, I., Marson, B., and Wisser, K. (2008, January) *Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input*. A panel presented at the 2008 Conference of the Association for Library and Information Science Education, Philadelphia, Pennsylvania.
- Hsieh-Yee, I., Choi, Y. and Kules, B. (2007, October). *Searching for Books and Images in OPAC: Effects of LCSH, TOC and Subject Domains*. A poster presented at the American Society for Information Science and Technology Annual Meeting, Milwaukee, Wisconsin.
- Hsieh-Yee, I. and Coogan, J. (2007, August) *Google Scholar vs. Academic Search Premier: A Comparative Analysis*. Presented to the Faculty and Staff of the University of the District

of Columbia.

- Hsieh-Yee, I. and Coogan, J. (2007, June). *Google Scholar vs. Academic Search Premier: A Comparative Analysis*. Presented to the Washington Research Library Consortium Community, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I., Choi, Y., and Kules, B.. (2007, June). *What Users Need for Subject Access: Table of Contents or Subject Headings?* A poster presented at the 2007 American Library Association Annual Conference, Washington, D.C., June 2007.
- Choi, Y., Hsieh-Yee, I., and Kules, B. (2007, June). *Retrieval Effectiveness of TOC and LCSH*. A paper presented at the Joint Conference on Digital Libraries 2007, Vancouver, Canada.
- Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007, May). *If We Build It, Will They Come? Building a Community of Practice for Metadata Stakeholders*. A poster presented at the Rutgers University Research Day, Bridgeton, New Jersey.
- Hsieh-Yee, I. (2007, May). *Federated Searching: User Experience & Perceptions*. International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I. (2007, May). *Search Performance of Google Scholar and Academic Search Premier*. International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I. (2007, May) *MERIC: Building a Digital Commons for Metadata Education & Research*. International Conference on Information Organization & Retrieval, National Taiwan University, Taipei, Taiwan.
- Hsieh-Yee, I., and Coogan, J. (2007, March/April). *A Comparative Analysis of Google Scholar and Academic Search Premier*. Poster presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland.
- Vellucci, S. L. and Hsieh-Yee, I. (2007, March/April) *They Didn't Teach Me That in Library School! Building a Digital Teaching Commons to Enhance Metadata Teaching, Learning and Research*. On-site presentation and Webcast by Elluminate. A contributed paper presented at the Association of College & Research Libraries 13th National Conference, Baltimore, Maryland. The acceptance rate for contributed paper was 20%. This paper was one of 10 conference papers chosen for live webcast during the conference.
- Moen, W., Hsieh-Yee, I. and Vellucci, S.L. (2007, January) *A DSpace Foundation for a Teaching & Research Commons: The Metadata Education and Research Information Commons*. A poster session presented at the Open Repositories Conference 2007, San Antonio, Texas.

- Tang, R., Hsieh-Yee, I., and Zhang, S. (2006, November) *User Perception of MetaLib Combined Search*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas, Nov. 2006.
- Hsieh-Yee, I. (2006, November). *Federated Searching: User Perceptions, System Design, and Library Instructions*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter).
- Hsieh-Yee, I. (2006, November). *Building a Digital Teaching Commons to Enhance Teaching and Learning: The MERIC Experience and Challenges*. Paper presented at the Annual Meeting of the American Society for Information Science and Technology, Austin, Texas. (Panel organizer, moderator, presenter)
- Hsieh-Yee, I. (2006, September). *Search Performance of Google Scholar and Academic Search Premier*. Paper presented at the ERIC Publishers Meeting, Washington, D.C.
- Hsieh-Yee, I., Zhang, S., and Rong Tang, R. (2006, June). *User Perceptions of a Federated Search System*. Poster presented at Joint Conference on Digital Libraries, Chapel Hill, North Carolina.
- Hsieh-Yee, I. and Zhang, S. (2006, June). *Preparing Users for Federated Search: Implications of a MetaLib User Perceptions Study*. Paper presented at the 2006 Ex Libris User Groups of North America Conference, Knoxville, Tennessee.
- Hsieh-Yee, I. (2006, January). *MERIC Organizations and Navigation*. Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.
- Hsieh-Yee, I. (2006, January). *Metadata and Cataloging Education: Recommended Competencies*. Paper presented at the 2006 ALISE Annual Conference, San Antonio, Texas.
- Hsieh-Yee, I. (2005, November). *Digital Library Evaluation: Progress & Next Steps*. Presentation at the Annual Meeting of the American Society for Information Science & Technology, Charlotte, North Carolina.
- Hsieh-Yee, I. (2005, August). *Providing Access to Digital Content: Issues for DL Managers*. Presentation at MDK12 Digital Library Steering Committee Meeting, Columbia, Maryland.
- Hsieh-Yee, I. (2005, April). *Enhancing Teaching and Learning: The Role of School Library Media Specialists*. Presentation at Meeting of the Baltimore County Public School System School Media Specialists, Baltimore, Maryland.

- Hsieh-Yee, I. (2005, January). *Subject Access and Users: Insights & Inspirations from Marcia J. Bates*. Paper presented at the Historical Perspectives SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.
- Hsieh-Yee, I. (2005, January). *Electronic Resource Management: Practice, Employer Expectations, & CE Interests*. Paper presented at Technical Services Education SIG, 2005 Conference of the Association for Library and Information Science Education, Boston, Massachusetts.
- Hsieh-Yee, I. (2004, October). *Library Professionals for the Digital Age: Competencies & Preparation*. Paper presented at Bibliographic Access Management Team meeting, Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (2004, January). *Cataloging and metadata expertise for the digital era*. Presented at Preparing 21st Century Cataloging and Metadata Professionals: A Workshop for Educators and Trainers, San Diego and sponsored by ALCTS, ALISE, LC, and OCLC.
- Hsieh-Yee, I. (2004, January). *Educating catalogers for the digital era*. Paper presented at the Technical Services SIG, 2004 Conference of the Association for Library and Information Science Education, San Diego.
- Hsieh-Yee, I. (2003, July). *Cataloging Education for the 21st Century*. A presentation at the Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (2002, January) *Metadata Education and Research Priorities: A Delphi Study of Metadata Experts*. Presentation at the 2002 Conference of the Association for Library and Information Science Education, New Orleans.
- Hsieh-Yee, I. (2001, November). *A Delphi Study of Metadata: Preliminary Findings*. Poster session at the 2001 Annual Meeting of the American Society for Information Science & Technology, Washington, D.C.
- Hsieh-Yee, I. (2001, June). *Resources on Asian American Children: Analysis of Retrieval by Search Engines and WorldCat*. Presentation at the National Conference on Asian Pacific American Librarians, San Francisco.
- Hsieh-Yee, I. (2001, January). *Delphi Study on Metadata: Project Design*. Presentation at Research Awards Session, Association for Library & Information Science Education, Washington, D.C.
- Hsieh-Yee, I. (2000, May). *Web Search Behavior Research: Progress and Implications*. Presentation at the Symposium on Evaluating Library and Information Science Research, University of Wisconsin-Madison, Madison, Wisconsin.

- Hsieh-Yee, I. (2000, March). *ERIC User Services: Evaluation in a Decentralized Environment*. Presentation at the National ERIC Joint Directors/Technical Meeting, Arlington, Virginia.
- Hsieh-Yee, I. (2000, January). *Enhancing Learning with Web Technology*. Presentation at Faculty Conversations, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (2000, January). *From Surrogates to Objects: CUA's Approaches to Organizing Electronic Resources*. Paper presentation at the Annual Conference of the Association for Library and Information Science Education, San Antonio, Texas.
- Yee, P., and Hsieh-Yee, I. (1997, November). *Individual Differences in Search Behavior on the WWW*. A poster session presented at the 38th Annual Meeting of the Psychonomic Society, Philadelphia, Pennsylvania.
- Hsieh-Yee, I. (1997, April). *Research + Marketing + Preparation = Job!* Presented at the "Workshop on Resume and Interview Techniques," Special Libraries Association, Student Chapter, Catholic University of America, Washington, D.C.
- Hsieh-Yee, I. (1997, February). *Creating CyberCatalogers: Education and Training*. Presentation at ALA's Midwinter Meeting, Washington, D.C.
- Hsieh-Yee, I. (1997, February). *Search Tactics of Web Users in Searching for Texts, Graphics, Known Items and Subjects: A Search Simulation Study*. Presented at the Conference of the Association for Library and Information Science Education, Washington, D.C.
- Hsieh-Yee, Ingrid. "Beginning Your Special Library/Information Center Career." Presented at SLA's "Career Day," Jan. 11, 1997, Catholic University of America.
- Hsieh-Yee, I. (1996, September). *The Roles of Library and Information Scientists in Managing Electronic Information*. Presentation at Hamilton College, Clinton, New York.
- Hsieh-Yee, I. (1996, May). *The Future of Cataloging as a Profession*. Presented at "The Cataloging Forum, Library of Congress, Washington, D.C.
- Hsieh-Yee, I. (1994, October). *The Impact of the Internet on OPACs*. Presented at the Third Workshop on User Interfaces for OPACs, Library of Congress, Washington, D.C.

Reports

- Hsieh-Yee, I., with Knowledge Management Competencies and Performance Action Group of the Federal Knowledge Management Initiative. "From Knowledge Management Competencies to Improved Organizational Performance." April 9, 2009.

- Hsieh-Yee, I., with Knowledge Practices Action Group of the Federal Knowledge Management Initiative. "KM Practice in Government Agencies: Findings and Recommendations." April 9, 2009.
- Hsieh-Yee, I. "Delphi Study on Metadata." 2001. Three quarterly reports submitted to the Association for Library and Information Science Education.
- Hsieh-Yee, I. "College Students' Information Channels: Patterns of Use and Possible Factors in Channel Selection." 1995. Submitted to the Catholic University of America.
- Hsieh-Yee, I. "The Information-Seeking Patterns of Scholars and Their Use of an Online Information System." 1994. Submitted to the Council on Library Resources.

Book Reviews

- Review of *The Measurement and Evaluation of Library Services*, by Sharon L. Baker and F. Wilfrid Lancaster. *Information Processing and Management* 30 (1994): 450-52.
- Review of *Subject Access to Films and Videos*, by Sheila S. Intner and William E. Studwell; and *Cataloging Unpublished Nonprint Materials*, by Verna Urbanski with Bao Chu Chang and Bernard L. Karon. *Information Processing and Management* 30 (1994): 449-50.
- Review of *Automated Information Retrieval in Libraries: A Management Handbook*, by Vicki Anders. *Journal of Library and Information Science* 19 (1993): 98-100.
- Review of *Full Text Databases*, by Carol Tenopir and Jung Soon Ro. *Information Processing and Management* 28 (1992): 667-68.
- Review of *Descriptive Cataloging for the AACR2R And USMARC: A How-to-Do It Workbook*, by Larry Millsap and Terry Ellen Ferl. *Information Processing and Management* 28 (1992): 809-11.
- Review of *MARC Manual: Understanding and Using MARC Records*, by Deborah J. Byrne. *Information Processing and Management* 28 (1992): 537-38.

Service

Professional Associations and Societies

- Library of Congress. RDA Training Program for the Profession. Co-authored with Tim Carlton. 2013-2014.
- 2014 Digital Preservation Outreach & Education Survey. Contributed to the design of the survey, 2014.
- National Digital Stewardship Alliance. Outreach Committee. 2011-2014.
- National Digital Stewardship Residency Program. Advisory Group, 2012-2013.
- FEDLINK Health Information Technology Advisory Council, 2011-2015.

- 2012 Joint Conference on Digital Libraries. Program Planning Committee, Pre-Conference Proposals Review Committee, 2012
- Catholic Research Resources Alliance. Five-Year Strategic Plan Task Force, 2011-2012
- Institute of Museum and Library Services. Grant reviewer. 2004, 2005, 2010.
- Association for Library and Information Science Education.
 - * ALISE Bodan Wynar Research Paper Award Committee, 2015, 2016, 2017
 - * ALISE Eugene Garfield Dissertation Award Competition, Jury, 2013, 2014
 - * ALISE Research Grant Competition Committee. Chair, 2012
 - * Pratt-Severn Faculty Innovation Award. Chair, 2009, 2010
 - * ALISE Doctoral Poster Jury, 2012
 - * “Information Organization Competencies for the 21st Century” Discussion session leader. 2009 Conference of the Association for Library and Information Science Education.
 - * Assisted Technical Services SIG Convener in organizing a program, ““Building a Metadata Education and Research Community through MERIC (Metadata Education and Research Information Commons): Demo and Stakeholder Input” for the 2008 ALISE conference.
 - * Association for Library Collections and Technical Services/Association for Library and Information Science Education (ALCTS/ALISE) Metadata Education and Research Information Center (MERIC) Advisory Board, Co-Chair (with Sherry Vellucci), 2005-2007. Chair, 2008-2009 (leading the effort to build MERIC, a repository and collaborative space for metadata educators, practitioners, and researchers)
 - * Technical Services SIG, Convener, 2004-2005. Organized a program on “Electronic Resources Management: Current Practices, Employer Expectations, and Teaching Strategies” for the 2005 conference in Boston, Massachusetts.
 - * Technical Services SIG, Convener, 2003-2004. Organized a program on “Organizing Information with Metadata: Desired Competencies and Teaching Innovations” for the 2004 conference.
 - * Technical Services SIG, Convener, 1999-2000. Organized a program on "Teaching the Organization of Electronic Resources" for the 2000 conference.
 - * Curriculum SIG, Co-convener (with Sibyl Moses), 1996-97. Organized a program on “Government Information Policy” for the 1997 conference.
- American Society for Information Science & Technology.
 - * Reviewer, Conference program panel submissions and poster submissions, 2005, 2006, 2007, 2009, 2011, 2012, 2013, 2014, 2015, 2016, 2017
 - * Nomination Committee, 2009-2011
 - * Information Science Education Special Interest Group. American Society for Information Science and Technology. Chair-Elect, 2007-2008. Chair 2008-2009.
 - * Committee on Information Science Education. 1999-2006.
 - * Committee on Information Science Education. Organizing Committee for an orientation program for students at ASIS annual meetings, 1999-2001
 - * Committee on Information Science Education. Sub-committee on Student Welfare (focusing on issues related to master's education), 1998-2001

- * SIG ED. Organizing Committee for the "Seminar on Research and Career Development" for junior researchers. 1995-96 (chair), 1997-2001
- * ISI Doctoral Dissertation Proposal Scholarship Jury, 1997; 2001, 2002
- * Pratt-Severn Best Student Research Paper Award Jury. Chair. 1997
- * 1998 Midyear Meeting (referee of contributed papers), 1997
- * Organizer and moderator of the ASIS Doctoral Forum and the Doctoral Research Seminar 1994-1995
- * SIG Human Computer Interaction. Chair-Elect, Chair, 1993-1995
- * Doctoral Forum Award Jury, 1995
- * Best Student Paper Award Jury, 1995
- American Library Association.
 - * Committee on Accreditation, External Review Panelist, 2009- (site visiting team 2013-2014; site visiting team 2016-2017)
 - * Association for Library Collections and Technical Services Task Force on Competencies and Education for a Career in Cataloging, member, 2008-2009
 - * Facilitator for "What They Don't Teach in Library School: Competencies, Education and Employer Expectations for a Career in Cataloging," an Association for Library Collections and Technical Services Preconference, June 22, 2007 in Washington, D.C. Also a local liaison for bringing this program to the Catholic University of America.
 - * Facilitator for a discussion on "Effect of Electronic Resources on Technical Services" at ALA's Midwinter Meeting held in Feb. 1997 in Washington, D.C.
 - * International Relations Committee, Subcommittee Task Force for IFLA and China, 1994-1997
- Virginia Association of School Librarians. Scholarships and Awards Committee. 2010-2012
- Federal Knowledge Management Initiative, Knowledge Management Practices Action Group. Member. 2009 (leading the effort to build a knowledge management repository)
- Federal Knowledge Management Initiative, Knowledge Management Competencies & Learning Action Group. Member. 2009 (developing an action plan for helping government knowledge workers and government agencies to develop knowledge management competencies)
- National Center for Education Statistics. Technical Review Panel. 2008.
- External evaluator for a case of promotion to full professorship. University of Tennessee. 2008.
- National Information Standards Organization (NISO). Advisory Board, Revision of "IMLS Framework of Guidance for Building Good Digital Collections," 2004, 2007.
- Library of Congress, Bibliographic Control of Web Resources: A Library of Congress Action Plan. Principal Investigator of Action Item 5.1, focusing on cataloging and metadata education for students and new librarians, 2002-2003. (worked with the Association for Library Collections and Technical Services, Education Task Force)

- Chinese American Librarians Association
 - * Chinese American Librarians Association Outstanding Library Leadership Award in Memory of Dr. Margaret Chang Fung, Award Committee, 2016-2017
 - * Achievement Award Jury, 2000-2001
 - * CALA Goal 2000 Task Force, 1997
 - * Scholarship Committee, 1995, 1996-1997 (chair)
 - * Board of Directors, 1994-1997
 - * Publication Committee, 1993-1995
 - * International Relations Committee, 1993-1996
- SailorSM Assessment Advisory Group (An impact study of Sailor, Maryland's Public Information Network), 1995
- Editorial boards
 - Journal of Library & Information Science. Editorial Board, 2012-
 - Chinese American Librarians Association, *Occasional Papers Series*. Editorial Board, 2009-2016.
 - Library Quarterly*. Editorial Board, 2003-2008
 - Bulletin of the Medical Library Association*, 1994-97
 - Newsletter editor for the Chinese American Librarians Association, 1989-92
- Referee for the following journals
 - Information Processing and Management*
 - Journal of Digital Information*
 - Journal of Education for Library and Information Science*
 - Journal of Information Science*
 - Journal of Library & Information Science*
 - Journal of Library Metadata*
 - Journal of the American Society for Information Science & Technology*
 - Library and Information Science Research*
 - Library Quarterly*
- Expert reviewer, “Digital Library” course, Evaluation module, University of North Carolina, Chapel Hill, 2007-2008.
- Expert reviewer, “Information Organization” course, University of Michigan, Ann Arbor. 2007.

Catholic University of America

- Academic Senate Committee on Appointments and Promotions, 2005-2008
- Academic Senate Committee on Committees and Rules, 2009-2012, 2019-2022
- Academic Senate representative (for School of Arts & Sciences), 2017-2020

- Academic Senate representative (for School of Library & Information Science) 2003-2012
- Academic Senate Library Committee, Interim Chair (2007), Member, 2008-2012
- Academic Senate Committee on Computing, 1995-2003
- President's Administrative Council, 2010-2012
- Deans' Council, 2010-2012
- Academic Leadership Group, 2010-2012
- Graduate Board, 2010-2012
- School of Arts & Sciences, Committee on Appointments and Promotions, 2015-2019
- School of Arts & Sciences, Academic Council, 2015-2016.
- School of Arts & Sciences, Ordinary Professor Group, 2013-
- Doctoral Dissertation Defense Committee, Chair, Dept. of Psychology, 2016, 2017, 2018, 2019, 2020, 2021, 2022
- Doctoral Dissertation Defense Committee, Chair, Dept. of Education, 2014, 2015, 2017, 2018, 2019
- Doctoral Dissertation Defense Committee, Chair, National Catholic School of Social Services, 2019, 2020, 2021
- Doctoral Dissertation Defense Committee, Chair, School of Nursing, 2006, 2008
- CUA Scholarly Communication Project Team, Member (2007), Chair, 2008-2009
- Dean Search Committee, 1992-1994, 1998-1999, 2002-2003, 2006-2007
- Fulbright Review Panel, 2006
- CUA Service Learning Advisory Board, 2001-2002
- CUA Faculty Conversations on Enhancing Teaching and Learning through Technology, Planning Group, 1999-2001
- CUA Initiative on Technology and Teaching, 1998-2001

Dept. of Library and Information Science

- Admissions Committee, 2007-2009, Chair 2010-2012, Member 2013-2015, Member 2018-2022
- Appointments and Promotions Committee, 1991-2022
- Student advisement, 1990-2022
- 4+1 Bachelor to Master program, Program Advisor, 2014-2022
- LIS Minor, Advisor, 2017-2022
- Curriculum Committee, 2020-21 (Member), 2021-2022 (Chair)
- Scholarship & Awards Committee, 2016-2018, 2020-21
- Comprehensive examination editor, 2020-21
- Symposium, Colloquium, Lecture Series Committee, May 2018-May 2020 (Chair)
- Symposium and Colloquium Committee, fall 2016-May 2018
- Bridging the Spectrum Symposium session moderator, 2018, 2019, 2020, 2021

- Organization of Information Core Course Outcomes Assessment, 2019, 2020
- The Information Professions in Society Core Course Outcomes Assessment, 2019, 2020
- Community Services Librarianship, Course of Study Review and Revision, 2020
- Organization of Information, Course of Study Review and Revision, 2019
- Organization of Information, Competency and Course Offerings Review, 2018-2019
- Accreditation presentation, Chair, June 2015-August 2016
- Interim Co-Chair, June 2015-August 2016.
- Blended/OWL Learning Committee, spring 2016-2018
- Technology Committee, fall 2016-2017
- Comprehensive examination editor, 2016-2017, reader (every year since 1990)
- LIS Advisory Board, 2015-2016 (chair); fall 2016- May 2018 (member)
- Committee on Planning and Assessment, 2015-2016 (chair)
- Senior Faculty Committee, 2014-2016.
- Accreditation Steering Committee, 2014-2016 (Chair, 2015-2016)
- Accreditation Students Standard Committee, co-chair, 2014-2016
- Accreditation Mission, Goals, and Objectives Standard Committee, co-chair, 2014-2016
- Accreditation Curriculum Standard, member 2014-2-16
- Accreditation Administration and Finance Standard, member 2014-2016
- Cultural Heritage Information Management Project (IMLS-funded), Co-PI, 2012-2015
- Cultural Heritage Information Management Forum (scheduled for June 2015), Co-Organizer, 2013-2015
- Health Information Technology Interim Review Committee, 2015 (chair)
- Health Sciences Librarianship Advisory Group, 2015- (chair)
- Comprehensive examination editors, 2013-2014, 2016-2017
- National Digital Stewardship Alliance liaison, 2011-2014
- Advisory Board, Chair 2010-2012
- Academic Honesty Committee, Chair, 2008-2012
- Blended Learning Committee, 2010-2012
- Colloquium Committee, 2010-2012
- Comprehensive Examination Administration, 2010-2012
- Cultural Heritage Information Management Advisory Committee, 2010-2012 (chair), 2013-
- Curriculum Committee, 1991-2003, 2007-2009, Chair 2010-2012, member 2013-
- Curriculum Subcommittee on Comprehensive Examination, Chair 2009-2012
- Health Information Technology Advisory Board, Chair 2010-2012. Member 2013-
- Health Sciences Advisory Committee, 2009, Chair 2010-2012. Member 2013-
- HIT Expert Forum, Chair 2012. Member 2013-2015
- Health Information Technology Student Group Advisor, 2011-2012
- State Council for Higher Education of Virginia, SLIS Representative, 2010-2012
- Symposium Planning Committee, 2010-2012
- Website Management Team, Chair, 2010-2012
- Urban School Librarianship Project (IMLS-Funded), PI, 2007-2011 (chair, 2010-11)

- Failing Grades Committee, 1995-1997 (chair), 2000-2001 (chair), 2004-2005 (chair), 2007 (chair)-2011
- Faculty Search Committee, 1994-1998, 2002-2004, 2006 (chair), Fall 2007-2009, Chair fall 2009-2012
- Recruitment Committee, Chair 2010-2012
- Strategic Planning Committee, Chair 2010-2012
- Technology Committee, 2010-2012
- Accreditation Advisory Committee, 2007-2009
- Accreditation Coordinating Committee, 2007-2009
- Accreditation Steering Committee, 2007-2009
- SLIS Advisory Group, 2007-2009
- Accreditation Curriculum Standard Committee, Co-chair, 2007-2009
- Accreditation Faculty Standard Committee, Co-chair, 2007-2009
- LSC 551 Information Organization Review Team, Co-chair, 2008-2009, 2015-2016.
- Curriculum Subcommittee on Portfolios, 2009
- LSC 555 Information Systems in Libraries and Information Centers Review Team, contributor, 2008-2009
- Redesign of LSC 730 Use and Users of Libraries and Information. 2009-
- Development of a metadata institute that was taught as LSC 715 Organization of Internet Resources in 2008. The institute is being revised and will be offered in 2010 under a new course title.
- Development of lesson plans, assignments, and evaluation rubrics for LSC 606, Cataloging and Classification, for the School's NCATE accreditation. 2008
- Howard and Mathilde Rovelstad Scholarship Committee, Chair, 2004-2007
- Assistant Dean Search Committee, Chair, Fall 2007
- Liaison to the Association for Library Collections and Technical Services to bring its preconference program, Cataloging Education and Employer Expectations, to CUA during the 2007 American Library Association Annual Meeting in Washington, D.C.
- Organizer of the colloquium presentation and reception for Tamar Sadeh of Ex Libris on PRIMO June 2007
- Practicum review and design (work with potential supervisors, such as the American Indian Museum internship description revision) 2006-
- Comprehensive examinations (edits, proctoring, and grading), 1990-
- SLIS Web site redesign: Comments and suggestions. Fall 2007
- Conducted surveys of current students and alumni in preparation for the 2005 re-accreditation, 2004-2005
- Technology Committee, 1992-1999 (chair, 1996-1998), 2002-2003 (member)
- Colloquia Committee 1997-1999, 2002-2003.
- Advisor of the CUA Student Chapter of the American Society for Information Science and Technology, 2002-2003
- Visiting Professor Search Committee, 1999, 2000, 2001
- Leader, Participation in the CORC experiment, 1999-2000
- Advisor of the Special Libraries Association Student Chapter, 1993-1999; the group was recognized for outstanding leadership by SLA in 1999.

- COA planning Committee, Task Force on Electronic Presentation of SLIS Reports (team leader) 1997-1998
- COA Planning Committee, Subcommittee on Technology 1996-1998
- NLM practicum coordinator, 1997-1998
- Computer Literacy Workshops: Assisted with the development and evaluation of the workshops, 1996-1998
- Leader, Participation in the InterCat project, 1995-1997

APPENDIX B

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MARC 21 Reference Materials

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[Part IX: The Leader](#)

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Part VII:

A Summary of Commonly Used MARC 21 Fields

This is a summary of the MARC 21 tags used most frequently by libraries in entering their own bibliographic records. For full listings of all MARC 21 tags, indicators, and subfield codes, see *MARC 21 Format for Bibliographic Data*.

In the explanations on these pages:

Tags -- The tags (3-digit numbers) are followed by the names of the fields they represent. In this summary, and in the *MARC 21 Format for Bibliographic Data*, if a tag can appear more than once in one bibliographic record, it is labeled repeatable (R). If it can only be used once, it is labeled non-repeatable (NR). For example, a catalog record can have several subjects, so the tags for subject added entries (6XX) are labeled repeatable (R).

Indicators -- The use of indicators is explained in fields where they are used. Indicators are one-digit numbers. Beginning with the 010 field, in every field -- following the tag -- are two character positions, one for Indicator 1 and one for Indicator 2. The indicators are not actually defined in all fields, however. And it is possible that a 2nd indicator will be used, while the 1st indicator remains undefined (or vice versa). When an indicator is undefined, the character position will be represented by the character # (for blank space).

Subfield codes -- All the data in each field (beginning with the 010 field) is divided into subfields, each of which is preceded by a delimiter-subfield code combination. The most common subfield codes used with each tag are shown. Each subfield code is preceded by the character \$, signifying a delimiter. The name of the subfield follows the code.

In general, every field **MUST** have a subfield 'a' (**\$a**). One exception that is often seen is in Field 020 (ISBN), when the ISBN information (subfield **\$a**) is unavailable but the price (subfield **\$c**) is known. Some subfields are repeatable. In this summary, repeatability is noted for only the more common repeatable subfields.

Examples: Examples follow the explanation for each field. For clarity, one space has been placed between the tag and the first indicator, one space has been placed between the second indicator and the first delimiter- subfield code, and one space has been inserted between the delimiter-subfield code and the subfield data.

010 Library of Congress Control Number -- (LCCN)

(NR, or Not Repeatable)

*Indicators undefined.**Subfield used most often:***\$a** -- Library of Congress control number

Example: 010 ## \$a ###86000988#

020 International Standard Book Number -- (ISBN)

(R, or Repeatable)

*Indicators undefined.**Subfields used most often:***\$a** -- International Standard Book Number**\$c** -- Terms of availability (often a price)**\$z** -- Cancelled/invalid ISBN (R)

Example: 020 ## \$a 0877547637

040 Cataloging source -- (NR)*Indicators undefined.**Subfields used most often:***\$a** -- Original cataloging agency**\$c** -- Transcribing agency**\$d** -- Modifying agency (R)

Example: 040 ## \$a DLC
 \$c DLC
 \$d gwhs

100 Main entry -- Personal name -- (primary author)

(NR; there can be only one main entry)

Indicator 1: Type of personal name entry element

0 -- Forename

1 -- Surname (this is the most common form)

3 -- Family name

Indicator 2 undefined.

Indicator 2 became obsolete in 1990. Older records may display 0 or 1

*Subfields used most often:***\$a** -- Personal name**\$b** -- Numeration

\$c -- Titles and other words associated with a name (R)
\$q -- Fuller form of name
\$d -- Dates associated with a name (generally, year of birth)

Example: 100 1# \$a Gregory, Ruth W.
 \$q (Ruth Wilhelme),
 \$d 1910–

130 Main entry -- Uniform title -- (NR)

Indicator 1: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Indicator 2 undefined.

Indicator 2 became obsolete in 1990. (See 100 above.)

Subfields used most often:

\$a -- Uniform title
\$p -- Name of part/section of a work (R)
\$l -- Language of a work
\$s -- Version
\$f -- Date of a work

Example: 130 0# \$a Bible.
 \$p O.T.
 \$p Psalms.

240 Uniform title (NR)

Indicator 1: Uniform title printed or displayed

0 -- Not printed or displayed

1 -- Printed or displayed (most common)

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Subfields used most often:

\$a -- Uniform title
\$l -- Language of a work
\$f -- Date of a work

Example: 240 10 \$a Ile mystérieuse.
 \$l English.
 \$f 1978

245 Title Statement (NR)*Indicator 1:* Title added entry

(Should the title be indexed as a title added entry?)

0 -- No title added entry

(indicates a title main entry; i.e. no author is given)

1 -- Title added entry

(the proper indicator when an author given in 1XX; the most common situation)

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present, including spaces; usually set at zero, except when the title begins with an article; e.g., for *The robe*, the second indicator would be set to 4. The letters *T*, *h*, *e*, and the space following them are then ignored in alphabetizing titles. The record will be automatically filed under "*r*" -- for *Robe*.

*Subfields used most often:***\$a** -- Title proper**\$h** -- Medium (often used for non-book media)**\$p** -- Name of part/section of a work (R)**\$b** -- Reminder of title (subtitles, etc.)**\$c** -- Remainder of title page transcription/Statement of responsibility

Example: 245 14 \$a The DNA story :
 \$b a documentary history of gene
 cloning /
 \$c James D. Watson, John Tooze.

246 Varying form of title (R)*Indicator 1:* Note/title added entry controller

1 -- Note, title added entry

3 -- No note, title added entry

Indicator 2: Type of title

-- No information provided

0 -- Portion of title

1 -- Parallel title

4 -- Cover title

8 -- Spine title

*Subfield used most often:***\$a** -- Title proper

Example: 246 3# \$a Four corners power review

250 Edition statement (NR)

Indicators undefined.

Subfield used most often:

\$a -- Edition statement

Example: 250 ## \$a 6th ed.

260 Publication, distribution, etc. (Imprint) (R)

Indicator 1: Sequence of publishing statements

-- No information provided

Indicator 2: Undefined

Subfields used most often:

\$a -- Place of publication, distribution, etc. (R)

\$b -- Name of publisher, distributor, etc. (R)

\$c -- Date of publication, distribution, etc. (R)

Example: 260 ## \$a New York :
 \$b Chelsea House,
 \$c 1986.

300 Physical description (R)

Indicators undefined.

Subfields used most often:

\$a -- Extent (number of pages) (R)

\$b -- Other physical details (usually illustration information)

\$c -- Dimensions (cm.) (R)

\$e -- Accompanying material (for example, "teacher's guide" or "manual")

Example: 300 ## \$a 139 p. :
 \$b ill. ;
 \$c 24 cm.

440 Series statement / Added entry--Title

This field was made obsolete in 2008 to simplify the series statement. See 490 and 830.

490 Series statement (No added entry is traced from field) (R)

Indicator 1: Specifies whether series is traced (whether an 8XX tag is also present)

0 -- Series not traced

1 -- Series traced (8XX is in record)

Indicator 2 undefined.

Subfield used most often:

\$a -- Series statement (R)

\$v -- Volume number (R)

Example: 490 1# \$a Colonial American craftsmen

500 General note (R)

Indicators undefined.

Subfield used most often:

\$a -- General note (Used when no specialized note field has been defined for the information. Examples: Notes regarding the index; the source of the title; variations in title; descriptions of the nature, form, or scope of the item.)

Example: 500 ## \$a Includes index.

504 Bibliography, etc. note (R)

Indicators undefined.

Subfield used most often:

\$a -- Bibliography, etc. note

Example: 504 ## \$a Includes bibliographical references.

505 Formatted contents note (R)

Indicator 1: Type of contents note

0 -- Complete contents

1 -- Incomplete contents (used with multivolume set when some volumes are not yet published)

2 -- Partial contents

Indicator 2: Level of content designation

-- Basic

Subfield used most often:

\$a -- Formatted contents note

Example: 505 0# \$a Pride and prejudice -- Emma
-- Northanger Abbey.

520 Summary, etc. note (R)

Indicator 1: Display constant controller

-- Summary

- 1 -- Review
- 2 -- Scope and content
- 3 -- Abstract

Indicator 2 undefined

Subfields used most often

- \$a** -- Summary, abstract, or annotation
- \$b** -- Expansion of summary note

Example: 520 ## \$a This basic guide to parliamentary procedure tells how to conduct and participate in a meeting properly.

600 Subject added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

- 0 -- Forename
- 1 -- Surname (this is the most common form)
- 3 -- Family name

Indicator 2: Subject heading system/thesaurus (identifies the specific list or file which was used)

- 0 -- Library of Congress Subject Headings
- 1 -- LC subject headings for children's literature
- 2 -- Medical Subject Headings
- 3 -- National Agricultural Library subject authority file
- 4 -- Source not specified
- 5 -- Canadian Subject Headings
- 6 -- Répertoire de vedettes-matière
- 7 -- Source specified in subfield \$2

(Note regarding Sears subject headings: The MARC 21 format does not provide an assigned indicator for Sears subject headings. Therefore, an indicator of 7 is used, and the MARC defined code "sears" is placed in subfield \$2.)

Subfields used most often:

- \$a** -- Personal name (surname and forename)
- \$b** -- Numeration
- \$c** -- Titles and other words associated with a name (R)
- \$q** -- Fuller form of name
- \$d** -- Dates associated with a name (generally, year of birth)
- \$t** -- Title of a work
- \$v** -- Form subdivision (R)
- \$x** -- General subdivision (R)
- \$y** -- Chronological subdivision (R)
- \$z** -- Geographic subdivision (R)
- \$2** -- Source of heading or term (used with 2nd indicator of 7)

Example: 600 10 \$a Shakespeare, William,
 \$d 1564-1616
 \$x Comedies
 \$x Stage history.

Example: 600 10 \$a Shakespeare, William,
 \$d 1564-1616
 \$x Knowledge
 \$z Rome
 \$v Congresses.

Notice that subfields \$v, \$x, and \$z in the 600 field are repeatable. Subfields \$v, \$x, \$y, and \$z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

610 Subject added entry -- Corporate name (R)

Indicator 1: Type of corporate name entry element

0 -- Inverted name (not used with AACR2)

1 -- Jurisdiction name

2 -- Name in direct order

Indicator 2: Subject heading system/thesaurus.

See indicator 2 under 600

Subfields used most often:

\$a -- Corporate name or jurisdiction name as entry element

\$b -- Subordinate unit (R)

\$v -- Form subdivision (R)

\$x -- General subdivision (R)

\$y -- Chronological subdivision (R)

\$z -- Geographic subdivision (R)

\$2 -- Source of heading or term (used with 2nd indicator of 7)

Example: 610 10 \$a United States.
 \$b Army Air Forces
 \$v Biography.

650 Subject added entry -- Topical term (Most subject headings fit here.) (R)

Indicator 1: Level of subject

-- No information provided

Indicator 2: Subject heading system/thesaurus

(identifies the specific list or file which was used)

0 -- Library of Congress Subject Headings

1 -- LC subject headings for children's literature

- 2 -- Medical Subject Headings
- 3 -- National Agricultural Library subject authority file
- 4 -- Source not specified
- 5 -- Canadian Subject Headings
- 6 -- Répertoire de vedettes-matière
- 7 -- Source specified in subfield \$2

Note regarding Sears subject headings: The MARC 21 format does not provide an assigned indicator for Sears subject headings. Therefore, an indicator of 7 is used, and the MARC defined code "sears" is placed in subfield \$2.)

Subfields used most often:

- \$a -- Topical term
- \$v -- Form subdivision (R)
- \$x -- General subdivision (R)
- \$y -- Chronological subdivision (R)
- \$z -- Geographic subdivision (R)
- \$2 -- Source of heading or term used with 2nd indicator of 7)

Example: 650 #0 \$a Theater
 \$z United States
 \$v Biography
 \$v Dictionaries.

Notice that subfields \$v, \$x, and \$z in the 650 field are repeatable. Subfields \$v, \$x, \$y, and \$z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

651 Subject added entry -- Geographic name (R)

Indicator 1: undefined.

Indicator 2: Subject heading system/thesaurus.

See indicator 2 under 600

Subfields used most often:

- \$a -- Geographic name
- \$v -- Form subdivision (R)
- \$x -- General subdivision (R)
- \$y -- Chronological subdivision (R)
- \$z -- Geographic subdivision (R)
- \$2 -- Source of heading or term (used with 2nd indicator of 7)

Example: 651 #0 \$a United States
 \$x History
 \$v Chronology.

Notice that subfields \$v, \$x, and \$z in the 651 field are repeatable. Subfields \$v, \$x, \$y, and \$z do not have to be in alphabetical order. They will be in the order prescribed by the instructions given by the subject heading system.

700 Added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

- 0 -- Forename
- 1 -- Surname (this is the most common form)
- 3 -- Family name

Indicator 2: Type of added entry

- # -- No information provided (most common; co-authors, editors, etc.)
- 2 -- Analytical entry (The values for Indicator 2 changed in 1994 with Format Integration, and older records may display additional values. An analytical entry involves an author/title of an item contained in a work.)

Subfields used most often:

- \$a** -- Personal name
- \$b** -- Numeration
- \$c** -- Titles and other words associated with a name (R)
- \$q** -- Fuller form of name
- \$d** -- Dates associated with a name (generally, year of birth)
- \$e** -- Relator term (such as ill.) (R)
- \$4** -- Relator code (R)

Example: 700 1# \$a Baldrige, Letitia.

710 Added entry -- Corporate name (R)

Indicator 1: Type of corporate name entry element

- 0 -- Inverted name (not used with AACR2)
- 1 -- Jurisdiction name
- 2 -- Name in direct order

Indicator 2: Type of added entry.

- See Indicator 2 under 700
- # -- No information provided
- 2 -- Analytical entry

Subfields used most often:

- \$a** -- Corporate name or jurisdiction name as entry element
- \$b** -- Subordinate unit (R)

Example: 710 2# \$a Sunburst Communications (Firm)

740 Added entry -- Uncontrolled related/analytical title (R)

Indicator 1: Nonfiling characters

- 0-9 -- Number of nonfiling characters present (for initial articles, including

spaces)

Indicator 2: Type of added entry. See Indicator 2 under 700

-- No information provided

2 -- Analytical entry

(This field was redefined in 1994 with Format Integration. Prior to 1994, the field was also used for variant titles, such as a different wording on a spine title. In records created since Format Integration, those variant titles appear in a 246 field.)

Subfield used most often:

\$a -- Title

Example: 740 02 \$a Uncle Vanya.

800 Series added entry -- Personal name (R)

Indicator 1: Type of personal name entry element

0 -- Forename

1 -- Surname

3 -- Family name

Indicator 2 undefined.

Subfields used most often:

\$a -- Personal name

\$b -- Numeration

\$c -- Titles and other words associated with a name (R)

\$q -- Fuller form of name

\$d -- Dates associated with a name (generally, year of birth)

\$t -- Title of a work (the series)

\$v -- Volume number

Example: 800 1# \$a Fisher, Leonard Everett.
 \$t Colonial American craftsmen.

830 Series added entry -- Uniform title (R)

Indicator 1 undefined.

Indicator 2: Nonfiling characters

0-9 -- Number of nonfiling characters present (for initial articles, including spaces)

Subfield used most often:

\$a -- Uniform title

\$v -- Volume number

Example: 830 #0 \$a Railroads of America (Macmillan)

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Part VIII:

A List of Other Fields Often Seen in MARC Records

- 001 Control number
- 003 Control number identifier
- 005 Date and time of latest transaction
- 006 Fixed-length data elements -- additional material characteristics
- 007 Physical description fixed field
- 008 Fixed length data elements (See [Part X](#))
- 022 International Standard Serial Number (ISSN)
- 037 Source of acquisition
- 041 Language code
- 043 Geographic area code
- 050 Library of Congress call number
- 060 National Library of Medicine call number
- 082 Dewey Decimal classification number (the one recommended by the Library of Congress; locally-assigned call numbers may appear elsewhere)
- 110 Main entry -- Corporate name (less frequent under AACR2 rules)
- 256 Computer file characteristics
- 263 Projected publication date
(indicates a CIP -- Cataloging in Publication -- record)
- 306 Playing time
- 508 Creation/production credits note
- 510 Citation/references note (review sources)
- 511 Participant or performer note
- 521 Target audience note (first indicator: 0 = reading grade level, 1 = interest age level, 2 = interest grade level, 3 = special audience characteristics, 4 = motivation interest level)
- 530 Additional physical form available note
- 538 System details note
- 586 Awards note
- 656 Index term -- Occupation
- 730 Added entry -- Uniform title
- 852 Location
- 856 Electronic location and access
- 9XX Reserved for local use. (They are used by vendors, systems, or individual libraries to exchange additional data)

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Part IX:

The Leader

There are 24 positions in the Leader, numbered from 00 to 23. For fuller explanation, see the *MARC 21 Format for Bibliographic Data*.

- 00-04 Record length (calculated by the computer for each record)
- 05 Record status
 - a = increase in encoding level
 - c = corrected or revised
 - d = deleted
 - n = new
 - p = increase in encoding from prepublication (previous CIP)
- 06 Type of record
 - a = language material
 - c = printed music
 - d = manuscript music
 - e = cartographic material
 - f = manuscript cartographic material
 - g = projected medium
 - i = nonmusical sound recording
 - j = musical sound recording
 - k = 2-dimensional nonprojectable graphic
 - m = computer file
 - o = kit
 - p = mixed materials
 - r = 3-dimensional artifact or naturally occurring object
 - t = manuscript language material
- 07 Bibliographic level
 - a = monographic component part
 - b = serial component part
 - c = collection
 - d = subunit
 - i = integrating resource
 - m = monograph/item
 - s = serial
- 08 Type of control
 - # = no specified type
 - a = archival
- 09 Character coding scheme
 - # = MARC-8
 - a = UCS/Unicode
- 10 Indicator count (always "2")
- 11 Subfield code count (always "2")
- 12-16 Base address of data (calculated by the computer for each record)
- 17 Encoding level
 - # = full level

- 1 = full level, material not examined
- 2 = less-than-full level, material not examined
- 3 = abbreviated level
- 4 = core level
- 5 = partial (preliminary) level
- 7 = minimal level
- 8 = prepublication level (CIP)
- u = unknown
- z = not applicable
- 18 **Descriptive cataloging form**
 - # = non-ISBD
 - a = AACR2
 - i = ISBD
 - u = unknown
- 19 **Multipart resource record level**
 - # = Not specified or not applicable
 - a = Set
 - b = Part with independent title
 - c = Part with dependent title
- 20 **Length of the length-of-field portion** (always "4")
- 21 **Length of the starting-character-position portion** (always "5")
- 22 **Length of the implementation-defined portion** (always "0")
- 23 **Undefined** (always "0")

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Part X:

Field 008 for Books

Field 008 is used for Fixed Length Data Elements ("Fixed Field Codes"). There are 40 character positions in field 008, numbered from 00-39. Undefined positions must contain either a blank (#) or a fill character (|). Positions 00-17 and 35-39 are defined the same way for all media.

The information shown here for positions 18-34 applies only to books. For explanation of all the positions below and for positions 18-34 for other media, see the *MARC 21 Format for Bibliographic Data*.

Note that field 008 has no indicators or subfield codes.

- 00-05 **Date entered on file (YYMMDD)**,
where Y=year, M=month, and D=day
- 06 **Type of date/publication status:**
 - b = no dates given; B.C. date involved
 - e = detailed date
 - s = single known date/probable date
 - m = multiple dates
 - r = reprint/reissue date (Date 1) and original date (Date 2)

- n = dates unknown
- q = questionable date
- t = publication date and copyright date
- | = no attempt to code

07-10 Date 1/beginning date of publication

11-14 Date 2/ending date of publication

Date fields contain the year(s) of publication. The type of date(s) in these elements are specified in fixed field element 06: Type of date/publication status. (For further details, see the field 008 description in the *MARC 21 Format for Bibliographic Data*.)

15-17 Place of publication, production, or execution

For example:

pk# = Pakistan

cau = California (US)

(For a full list of codes used in these positions, see the *MARC Code List for Countries*.)

18-21 Illustrations (up to 4 codes):

- # = no illustrations
- a = illustrations
- b = maps
- c = portraits
- d = charts
- e = plans
- f = plates
- g = music
- h = facsimiles
- i = coats of arms
- j = genealogical tables
- k = forms
- l = samples
- m = phonodisc, phonowire, etc.
- o = photographs
- p = illuminations
- | = no attempt to code

22 Target audience:

- # = unknown or not specified
- a = preschool
- b = primary
- c = pre-adolescent
- d = adolescent
- e = adult
- f = specialized
- g = general
- j = juvenile
- | = no attempt to code

23 Form of item:

- # = none of the following
- a = microfilm

b = microfiche
c = microopaque
d = large print
f = braille
r = regular print reproduction
s = electronic
| = no attempt to code

24-27 Nature of contents (up to 4):

= no specified nature of contents
a = abstracts/summaries
b = bibliographies (is one or contains one)
c = catalogs
d = dictionaries
e = encyclopedias
f = handbooks
g = legal articles
i = indexes
j = patent document
k = discographies
l = legislation
m = theses
n = surveys of literature
o = reviews
p = programmed texts
q = filmographies
r = directories
s = statistics
t = technical reports
u = standards/specifications
v = legal cases and notes
w = law reports and digests
z = treaties
| = no attempt to code

28 Government publication:

= not a government publication
i = international intergovernmental
f = federal/national
a = autonomous or semi-autonomous component
s = state, provincial, territorial, dependent, etc.
m = multistate
c = multilocal
l = local
z = other type of government publication
o = government publication -- level undetermined
u = unknown if item is government publication
| = no attempt to code

29 Conference publication:

0 = not a conference publication
1 = conference publication

- 30 | = no attempt to code
 Festschrift:
 0 = not a festschrift
 1 = festschrift
 | = no attempt to code
- 31 Index:
 0 = no index
 1 = index present
 | = no attempt to code
- 32 Undefined (since 1990) (Earlier records may contain the values 0 or 1)
 # = Undefined
 | = no attempt to code
- 33 Literary form:
 0 = not fiction (not further specified)
 1 = fiction (not further specified)
 c = comic strips
 d = dramas
 e = essays
 f = novels
 h = humor, satires, etc.
 i = letters
 j = short stories
 m = mixed forms
 p = poetry
 s = speeches
 u = unknown
 | = no attempt to code
- 34 Biography:
 # = no biographical material
 a = autobiography
 b = individual biography
 c = collective biography
 d = contains biographical information
 | = no attempt to code
- 35-37 Language:
 A three-letter code. For example: eng fre ger spa rus ita

(For a full list of codes used in these positions, see the [MARC Code List for Languages](#).)

- 38 Modified record:
 # = not modified
 x = missing characters (because of characters unavailable in MARC character set)
 s = shortened
 d = "dashed-on" information omitted
 r = completely romanized/printed cards in script
 o = completely romanized/printed cards romanized
 | = no attempt to code
- 39 Cataloging source:

= national bibliographic agency
c = cooperative cataloging program
d = other sources
u = unknown
| = no attempt to code

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[Library of Congress Help Desk](#) (10/27/2009)

APPENDIX C

Appendix C. Materials Considered

Exhibit	Document Description
1004	Excerpts of <i>Silicon Processing for the VLSI Era</i> . Volume 4. <i>Deep-Submicron Process Technology</i> , by Stanley Wolf and Richard N. Tauber, Lattice Press, 2002. (“ <i>Wolf</i> ”)
1004A	Bibliographic and MARC records for <i>Wolf</i> , available at https://search.library.wisc.edu/catalog/999930512302121 from the online catalog of the University of Wisconsin-Madison Library System.
1004B	Profile of the University of Wisconsin-Madison Library System, available at https://librarytechnology.org/library/2090 from libraries.org, a directory of libraries throughout the world.
1004C	Bibliographic record for <i>Deep-Submicron Process Technology</i> , available at https://kxp.k10plus.de/DB=2.1/SET=1/TTL=1/SHW?FRST=9/PRS=HOL from GVK, the union catalog of the German Library Network; table of contents, available at https://www.gbv.de/dms/bowker/toc/9780961672171.pdf ; and OCLC FirstSearch record for this book (subscription required for access).
1004D	Bibliographic and MARC records for <i>Silicon Processing for the VLSI Era</i> (including volume 4. <i>Deep-Submicron Process Technology</i>), available at https://search.library.yale.edu/catalog/3048300 from the online catalog of the Yale University library catalog.
1004E	Profile of the Yale University Library, available at https://librarytechnology.org/library/2280 from libraries.org, a directory of libraries throughout the world.
1004F	Publisher webpage for <i>Deep-Submicron Process Technology</i> , archived by Internet Archive on September 5, 2002, available at https://web.archive.org/web/20020905154536/http://www.latticepress.com/rep130silwaf.html .

1012	Excerpts of <i>Semiconductor Manufacturing Technology</i> by Michael Quirk and Julian Serda, Prentice Hall, 2001. (“ <i>Quirk</i> ”)
1012A	Bibliographic and MARC records for <i>Quirk</i> , available at https://lccn.loc.gov/00041653 from the online catalog of the Library of Congress.
1012B	Profile of the Library of Congress, available at https://librarytechnology.org/library/2263 from libraries.org, a directory of libraries throughout the world.
1012C	Bibliographic and MARC records for <i>Quirk</i> , available at https://search.library.yale.edu/catalog/4731950 from the online catalog of the Yale University.
1012D	Profile of the Yale University Library, available at https://librarytechnology.org/library/2280 from libraries.org, a directory of libraries throughout the world.
1012E	Copyright registration record for <i>Quirk</i> , available at https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=1&ti=1,1&Search%5FArg=Semiconductor%20manufacturing%20technology&Search%5FCode=TALL&CNT=25&PID=BoTNd8ZwCtGgaXbiCmVKz69PN3ggv&SEQ=20250511141412&SID=1 from the public catalog of the US Copyright Office.
1012F	Citations to <i>Quirk</i> , obtained from Google.
1013	Excerpts of <i>Chemical Mechanical Polishing in Silicon Process</i> , Semiconductors and Semimetals, vol. 63, edited by S. H. Li and R. O. Miller, Academic Press, 2000. (“ <i>Li</i> ”)
1013A	Bibliographic and MARC records for <i>Li</i> , available at https://search.library.berkeley.edu/permalink/01UCS_BER/1thfj9n/alma991039734039706532 from the online catalog of the University of California at Berkeley Library.
1013B	Profile of the University of California, Berkeley Library, available at https://librarytechnology.org/library/11 ; the website of the

	University of California Berkeley Libraries, archived by Internet Archive on December 12, 1998, available at https://web.archive.org/web/19981212030542/http://www.lib.berkeley.edu/ ; and the webpage of library's online catalog, Pathfinder, archived by Internet Archive on January 17, 1999, available at https://web.archive.org/web/19990117024322/http://sunsite2.berkeley.edu:8000/ .
1013C	Bibliographic and MARC records for <i>Li</i> , available at https://search.library.yale.edu/catalog/4481822?block=Books from the online catalog of the Yale University Library.
1013D	Profile of the Yale University Library, available at https://librarytechnology.org/library/2280 from libraries.org, a directory of libraries throughout the world.
1013E	Copyright registration record for <i>Li</i> , available at https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?Search_Arg=Chemical+Mechanical+Polishing+in+Silicon+Process&Search_Code=TALL&PID=qYyGKwkbTNEYqS-dk_A5Z6FqSqGhwzB&SEQ=20250512142416&CNT=25&HIST=1 from the public catalog of the US Copyright Office.
1013F	Citations to <i>Li</i> , obtained from Google Scholar.
1014	Excerpts of <i>Microchip Fabrication: A Practical Guide to Semiconductor Processing</i> by Peter Van Zant, 3rd edition, McGraw-Hill, 1997. (" <i>Van Zant-1997</i> ")
1014A	Bibliographic and MARC records for <i>Van Zant-1997</i> available at https://lccn.loc.gov/96015729 from the online catalog of the Library of Congress.
1014B	LOCIS: Library of Congress Information System, archived by Internet Archive on May 24, 1997, available from https://web.archive.org/web/19970524160715/http://library.usask.ca/hytelnet/us3/us373.html

1014C	Copyright registration record for <i>Van Zant-1997</i> available at https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=9&ti=1,9&Search%5FArg=Microchip%20fabrication&Search%5FCode=TALL&CNT=25&PID=t5a6QCh3JSq0O6VdYMoTF99O3UTOY&SEQ=20250512150946&SID=2 from the public catalog of the US Copyright Office.
1014D	Bibliographic and MARC records for <i>Van Zant-1997</i> , available at https://search.lib.umich.edu/catalog/record/990031022930106381 from the online catalog of the University of Michigan Library.
1014E	Profile of the University of Michigan Library, available at https://librarytechnology.org/library/2089 from libraries.org, a directory of libraries throughout the world.
1014F	Citations to <i>Van Zant-1997</i> , obtained from Google Scholar.
1015	Excerpts of <i>Microchip Fabrication : A Practical Guide to Semiconductor Processing</i> , by Peter Van Zant, 5th edition, McGraw-Hill, 2004. (“ <i>Van Zant-2004</i> ”)
1015A	Bibliographic and MARC records for <i>Van Zant-2004</i> , available at https://lcn.loc.gov/2004040287 from the online catalog of the Library of Congress.
1015B	Profile of the Library of Congress, available at https://librarytechnology.org/library/2263 from libraries.org, a directory of libraries throughout the world.
1015C	Copyright registration record for <i>Van Zant-2004</i> , available at https://cocatalog.loc.gov/cgi-bin/Pwebrecon.cgi?v1=7&ti=1,7&Search%5FArg=Microchip%20Fabrication&Search%5FCode=TALL&CNT=25&PID=CLwzf8bsqs9bKwNBk__u81CumbLC7V&SEQ=20250609135757&SID=1 from the public catalog of the US Copyright Office.
1015D	Bibliographic and MARC records for <i>Van Zant-2004</i> , available at https://search.library.berkeley.edu/permalink/01UCS_BER/1thfj9n/a

	lma991040858739706532 from the online catalog of the University of California, Berkeley Library.
1015E	Pathfinder, Gladis – UCB Library Catalog, archived by Internet Archive on April 3, 2004, available at https://web.archive.org/web/20040403221441/http://sunsite2.berkeley.edu:8000/ .
App. A	Hsieh-Yee CV
App. B	Parts VII to X of <i>Understanding MARC Bibliographic</i> , available at https://www.loc.gov/marc/umb/um07to10.html from the Library of Congress.

APPENDIX 1004A



Books

Silicon processing for the VLSI era

AUTHOR / CREATOR

[Wolf, Stanley, 1943-](#)

AVAILABLE AS

Physical

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 [Citation](#)

Details

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Stacks

TK7874 W635 2000

This Location Has

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v.1

v.3-v.4

Publication Details

CREATOR

Stanley Wolf, Richard N. Tauber

FORMAT

Books

LANGUAGE

English

CONTRIBUTORS

[Tauber, Richard N](#)

PUBLICATION

Sunset Beach, Calif. : Lattice Press, [2000-]

©2000-

PHYSICAL DETAILS

volumes : illustrations ; 25 cm

ISBNs

9780961672164, 0961672161, 9780961672171, 096167217X

OCLC

ocm43698493

Notes

Includes bibliographies and indexes.

Contents

v. 1. Process technology -- v. 4. Deep-submicron process technology

Subjects

[Integrated circuits -- Very large scale integration.](#)

[Silicon.](#)

Items Related By Call Number

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Books

Design of power management
integrated circuits

Wicht, B. (Bernhard), 1970- author

Online

TK7874 .W53 2024

Books

Analysis and synthesis of MOS
translinear circuits

Wiegerink, Remco J., 1964-

Physical

TK7874 W54 1993



Additional Information



Digital Copies at HathiTrust

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MARC Bibliographic Record

LEADER	00980cam a2200289Ia 4500
001	9956988653602122

005	20241031123430.0	
008	000323t20002000caua	000 0 eng d
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020		\$a096167217X (v. 4)
035		\$a (OCoLC) ocm43698493
035		\$a (WU) 5698865-uwmadisondb
035		\$a (EXLNZ-01UWI_NETWORK) 999930512302121
040		\$aNJI\$beng\$cNJI
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245	10	\$aSilicon processing for the VLSI era /\$cStanley Wolf, Richard N. Tauber.
264	_1	\$aSunset Beach, Calif. :\$bLattice Press,\$c[2000-]
264	_4	\$c©2000-
300		\$avolumes :\$billustrations ;\$c25 cm
336		\$atext\$btxt\$2rdacontent
337		\$aunmediated\$bn\$2rdamedia
338		\$avolume\$bnc\$2rdacarrier
504		\$aIncludes bibliographies and indexes.
505	1_	\$av. 1. Process technology -- v. 4. Deep-submicron process technology.
650	_0	\$aIntegrated circuits\$xVery large scale integration.
650	_0	\$aSilicon.
700	1_	\$aTauber, Richard N.
997		\$aMARCIVE

MMS IDs

Document ID: 999930512302121

Network Electronic IDs:

Network Physical IDs: 999930512302121

mms_mad_ids: 9956988653602122

APPENDIX 1004B

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 53706
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This library is affiliated with [University of Wisconsin \(view map\)](#). The collection of the library contains **11,861,794** volumes. The library circulates **105,902** items per year. The library serves a population of **49,886** FTE Enrollment.

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Statistics Academic		
Enrollment	49,886	FTE Students
Collection size	11,861,794	volumes
Annual Circulation	105,902	transactions



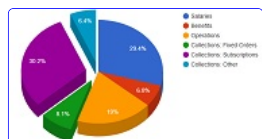
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Current Automation System	Alma	2013
Previous Automation System	Voyager	1998
Previous Automation System	NOTIS	1993
Previous Automation System	LS/2000	1988
Previous Automation System	None	
Discovery Service (w/index)	Ex Libris CDI	2013
Previous Discovery Index	Voyager	1998
Discovery Interface	Locally Developed	2013
Previous Discovery Interface	Primo Central and Local	2012
Authentication Service	EZproxy	2001
Previous Authentication Service	Squid Proxy Service	1997
Digital Collection Management	Fedora	
Institutional Repository	Dspace	
Electronic Resource Management	Alma	
Archives Management	ArchivesSpace	
Interlibrary Loan or Resource Sharing	OCLC Interlibrary Loan ILLiad Resource Sharing for Groups Rapido Alma Resource Sharing RapidILL	
Resource Sharing Networks	Big Ten Academic Alliance	
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Self-Check	3M SelfCheck System Model 6420	

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Identifiers	
libraries.org ID	2090
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results search [and] ([ALL] all words without fulltext) Deep-submicron process technology | 11 hits



PPN: 367048841 [Cite](#)

Title: [Deep-Submicron process technology](#) / Stanley Wolf

Collective title: [Silicon processing for the VLSI era](#) / Stanley Wolf; Richard N. Tauber ; Vol. 4: [Deep-Submicron process technology](#) / Stanley Wolf

Author: [Wolf, Stanley](#)

Published: Sunset Beach, Calif. : Lattice Press, c 2002

Languages: English

Extent: XXII, 806 S : Ill., graph. Darst ; 24 cm

Information about the content: Includes bibliographical references

ISBN: 0-9616721-7-X

Further information: [Inhaltsverzeichnis](#)



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Preface	
The Evolution of the Structure of Mosfets	p. 1
300-MM Silicon Wafers	p. 17
Gate Dielectrics: Thin Gate Oxides	p. 75
High-k Dielectrics	p. 145
The Structure of Deep-Submicron Mosfets: Retrograde-Wells; Super-Steep Retrograde Channel Doping; Drain Engineering; Punchthrough-Control Implants	p. 181
Deep-Submicron Lithography I: Photoresists	p. 227
Deep-Submicron Lithography II: Optics and Hardware	p. 259
Chemical Mechanical Polishing (Cmp)	p. 313
Shallow Trench Isolation (Sti)	p. 433
Silicon-Germanium (Si-Ge) Technology for High-Performance Telecommunications ICs	p. 475
Silicon-On-Insulator (Soi) Technology	p. 501
Multilevel Interconnects for Ulsi	p. 573
Polycides and Salicides of Tisi ₂ , CoSi ₂ and NiSi	p. 603
Low-k Dielectrics	p. 639
Dual-Damascene Interconnects	p. 671
Copper Interconnect Process Technology	p. 711
Index	p. 795

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Title: Deep-Submicron process technology Author: Wolf, Stanley Accession Number: 249515138

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Title: **Deep-Submicron process technology**

Author(s): [Wolf, Stanley](#)

Publication: Sunset Beach, Calif. Lattice Press

Year: 2002

Description: XXII, 806 Seiten Illustrationen, Diagramme 24 cm

Language: English

Series: Silicon processing for the VLSI era; / Stanley Wolf; Richard N. Tauber ; Vol. 4; Variation: Wolf, Stanley.; Silicon processing for the VLSI era; / Stanley Wolf; Richard N. Tauber ;; vol. 4

Standard No: ISBN: 096167217X; 9780961672171

Access: <http://www.gbv.de/dms/bowker/toc/9780961672171.pdf> Materials specified: Inhaltsverzeichnis

Note(s): Includes bibliographical references

Responsibility: Stanley Wolf

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Document Type: Book; Internet Resource

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APPENDIX 1004D

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Silicon processing for the VLSI era

Author

Wolf, Stanley, 1943-

Title

Silicon processing for the VLSI era / Stanley Wolf,

Available from:

Title	Silicon processing for the VLSI era / Stanley Wolf, Richard N. Tauber.
ISBN	0961672137 (cover : v. 1) 096167237X (v. 1) 0961672145 (cover : v. 2) 096167245 (v. 2) 096167253X (v. 3) 096167217X (v. 4)
Published	Sunset Beach, Calif. : Lattice Press, c1986-2002.
Physical Description	v. <1-4> : ill. ; 25 cm.
Format	 Books
Language	English
Added to Catalog	February 13, 2004
Bibliography	Includes bibliographies and index.
Contents	v. 3. Submicron MOSFET v. 4. Deep-submicron process technology.
Incomplete contents	v. 1. Process technology. v. 2. Progress integration.
Subjects	Integrated circuits > Very large scale integration . Silicon .
Also listed under	Tauber, Richard N.
Bookmark As	https://search.library.yale.edu/catalog/3048300
Citation	Cite

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010		a 86081923
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020		z 096167237X (v. 1)
020		a 0961672145 (cover : v. 2)
020		z 096167245 (v. 2)
020		a 096167253X (v. 3)
020		a 096167217X (v. 4)
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035		a (CStRLIN)CTYG90-B51875
035		9 FFP7259YL
035		a 3048300
050	0	a TK7874 b .W635 1986
079		a ocm14258223
082	0	a 621.381/73 2 19
100	1	a Wolf, Stanley, d 1943-
245	1 0	a Silicon processing for the VLSI era / c Stanley Wolf, Richard N. Tauber.
260	0	a Sunset Beach, Calif. : b Lattice Press, c c1986-2002.
300		a v. <1-4> : b ill. ; c 25 cm.
504		a Includes bibliographies and index.
505	1	a v. 1. Process technology. -- v.2. Progress integration.
505	0	a v. 3. Submicron MOSFET -- v. 4. Deep-submicron process technology.
650	0	a Integrated circuits x Very large scale integration.
650	0	a Silicon.
700	1	a Tauber, Richard N.
901		a TK7874
902		a Sterling Memorial Library b SML, Stacks, LC Classification >> TK7874 W635 (LC) DELIM 3342409
907		a 2004-02-13T14:11:47.000Z
928		a AC031397

Timestamp: 2024-12-03T03:58:35.169Z

Subject Authorities

Variants from 961732 (matched with [Integrated circuits])

- Chips (Electronics)
- Circuits, Integrated
- Computer chips

Microchips

Timestamp: 2024-08-26T15:49:09.436Z

Variants from 990460 (matched with [Silicon])

Silicium

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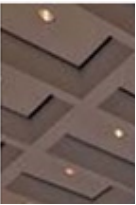
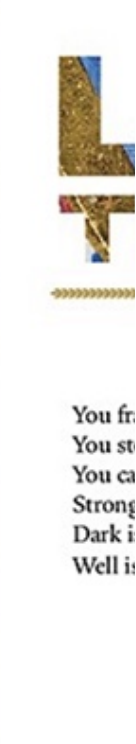
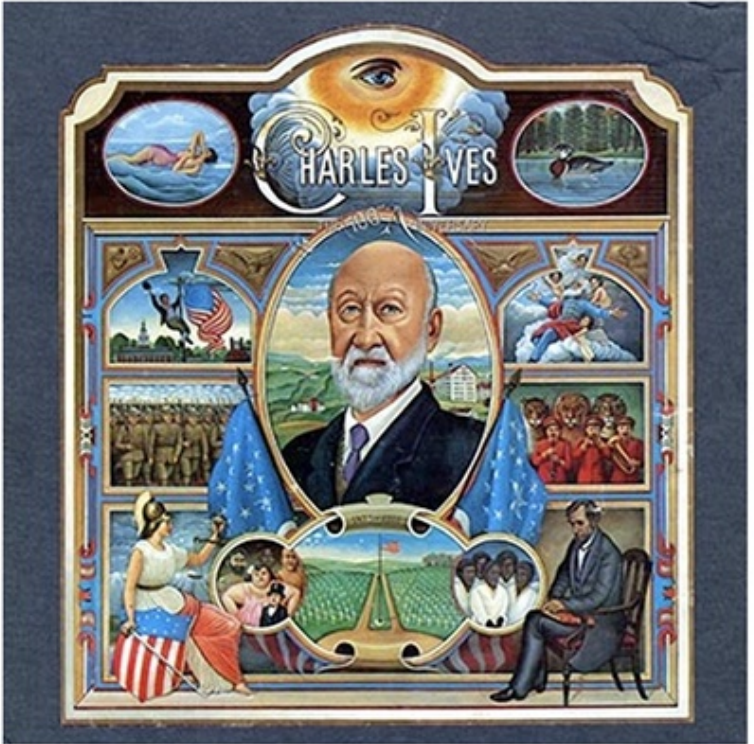
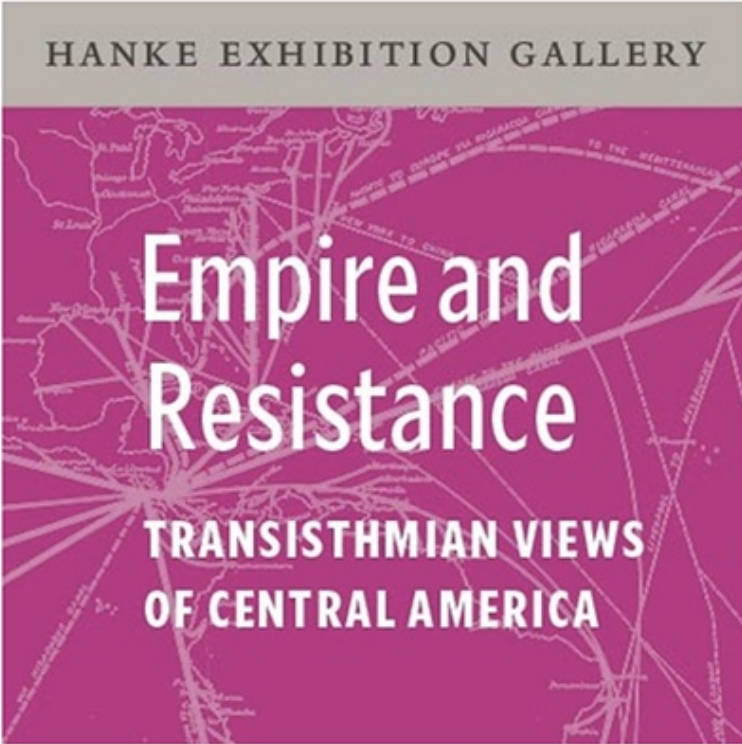
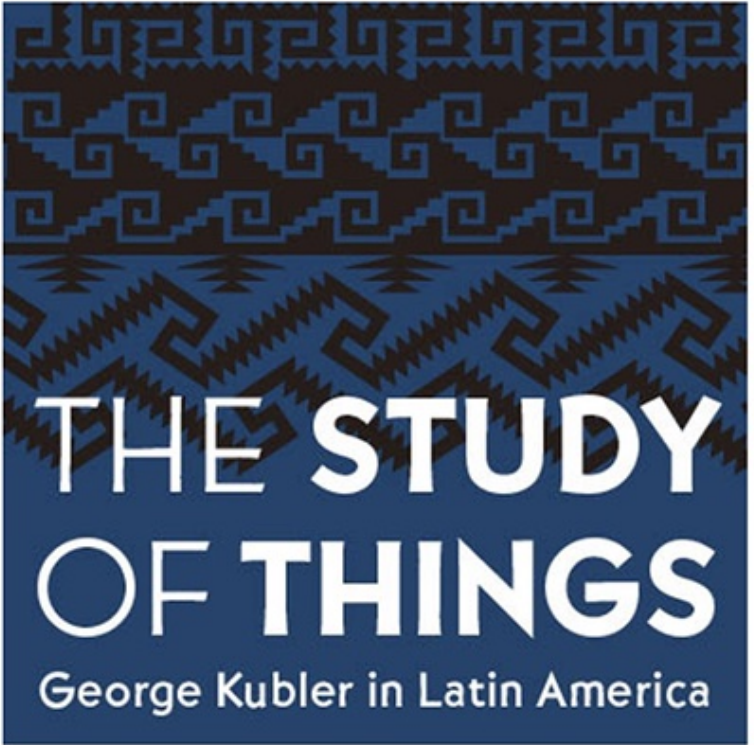
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Yale University Library

Yale University

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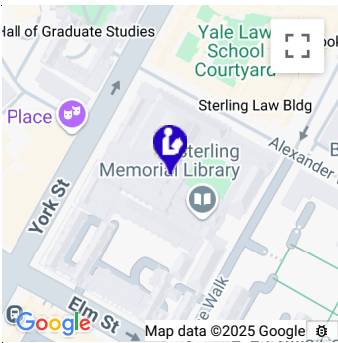


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Statistics Academic		
Enrollment	12,336	FTE Students
Collection size	13,796,100	volumes
Annual Circulation	373,600	transactions



Yale University Library



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Previous Automation System	Voyager	2001
Previous Automation System	NOTIS	1987
Discovery Service (w/index)	Ex Libris CDI	2013
Discovery Interface	Blacklight	2015
Digital Collection Management	Locally Developed	2021
Institutional Repository	Digital Commons	2013
Digital Preservation	Preservica	2015
Archives Management	ArchivesSpace	
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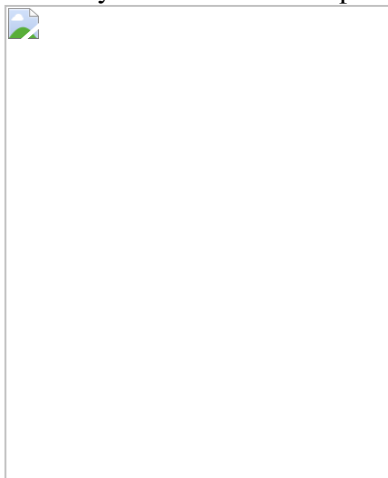
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Semiconductor manufacturing technology

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Personal name

Quirk, Michael, 1953-

Main title

Semiconductor manufacturing technology / Michael Quirk, Julian Serda.

Published/Created

Upper Saddle River, NJ : Prentice Hall, 2001.

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LCCN Permalink	https://lcn.loc.gov/00041653
Description	xiii, 666 p. : ill. ; 29 cm.
ISBN	0130815209
LC classification	TK7836 .Q27 2001
Related names	Serda, Julian.
LC Subjects	Electronic industries.

Semiconductors--Design and construction.

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100	1_ a Quirk, Michael, d 1953-
245	10 a Semiconductor manufacturing technology / c Michael Quirk, Julian Serda.
260	___ a Upper Saddle River, NJ : b Prentice Hall, c 2001.
300	___ a xiii, 666 p. : b ill. ; c 29 cm.
504	___ a Includes bibliographical references (p. 647) and index.
650	_0 a Electronic industries.
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United States

Phone: 202-707-5000

Connect to: [Library Web Site](#) ✓ [Online Catalog](#)

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Other Info: Went live with Voyager on August 15, 1999. Currently planning to implement the Library Collections Access Platform (LCAP) on FOLIO and EBSCO discovery services in FY25.

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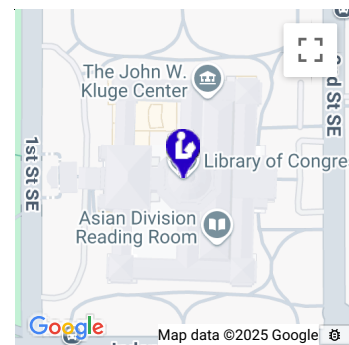
Affiliations: The library is a member of the [Association of Research Libraries](#)

Collection size	175,000,000	volumes
Annual Circulation	250,000	transactions

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Library of Congress



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Previous Automation System	Voyager	1998
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Electronic Resource Management	Electronic Resource Management	
Item ID Type	Barcode	

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Semiconductor manufacturing technology

Author

Quirk, Michael, 1953-

Author	Quirk, Michael, 1953-
Title	Semiconductor manufacturing technology / Michael Quirk, Julian Serda.
ISBN	0130815209
Published	Upper Saddle River, N.J. : Prentice Hall, c2001.
Physical Description	xiii, 666 p. : ill. photos ; 29 cm.
Format	 Books
Language	English
Added to Catalog	June 01, 2002
Bibliography	Includes bibliographical references and index.
Subjects	Electronic industries. Semiconductors > Design and construction .
Also listed under	Serda, Julian
Bookmark As	https://search.library.yale.edu/catalog/4731950
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300		a xiii, 666 p. : b ill. photos ; c 29 cm.
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650 0		a Semiconductors x Design and construction.
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902		a Sterling Memorial Library b SML, Stacks, LC Classification >> TK7836 Q27X 2001 (LC)+ Oversize DELIM 5126506
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Subject Authorities

Variants from 947856 (matched with [Electronic industries])

Electronics industry

Timestamp: 2024-08-26T15:49:05.365Z

Variants from 989106 (matched with [Semiconductors])

Crystalline semiconductors

Semi-conductors

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Semiconductor devices

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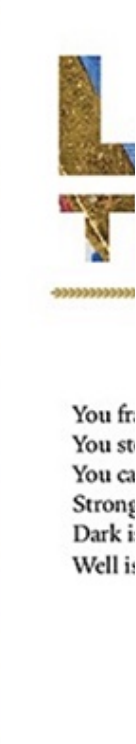
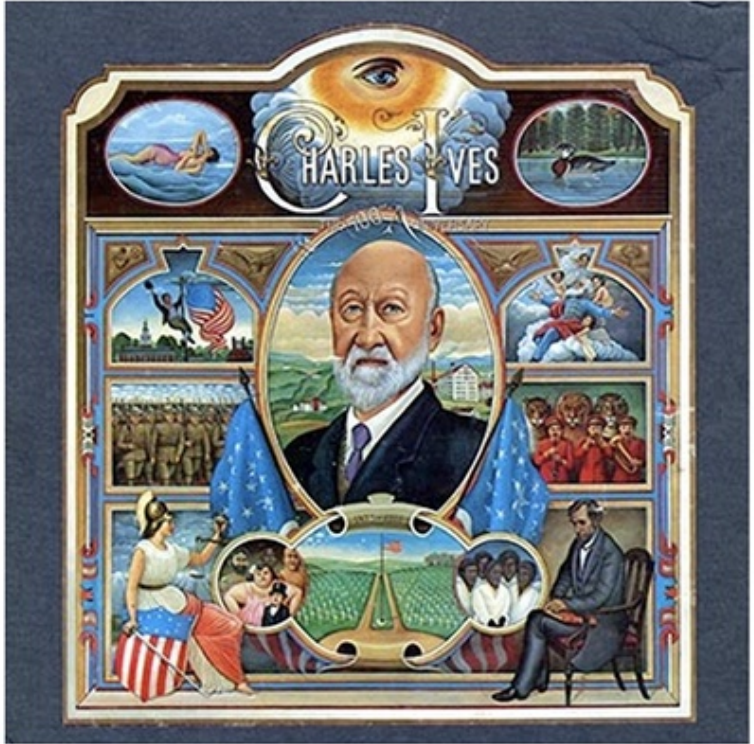
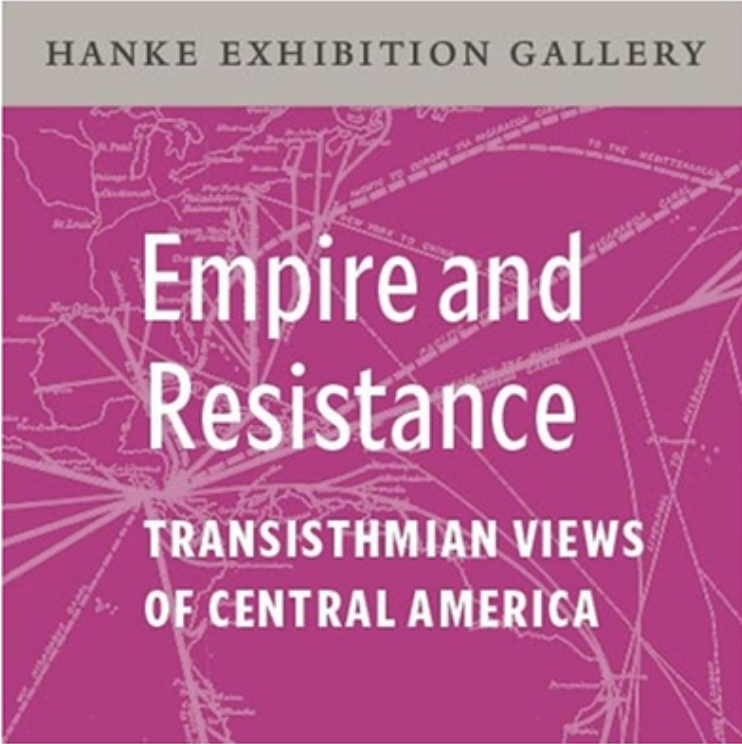
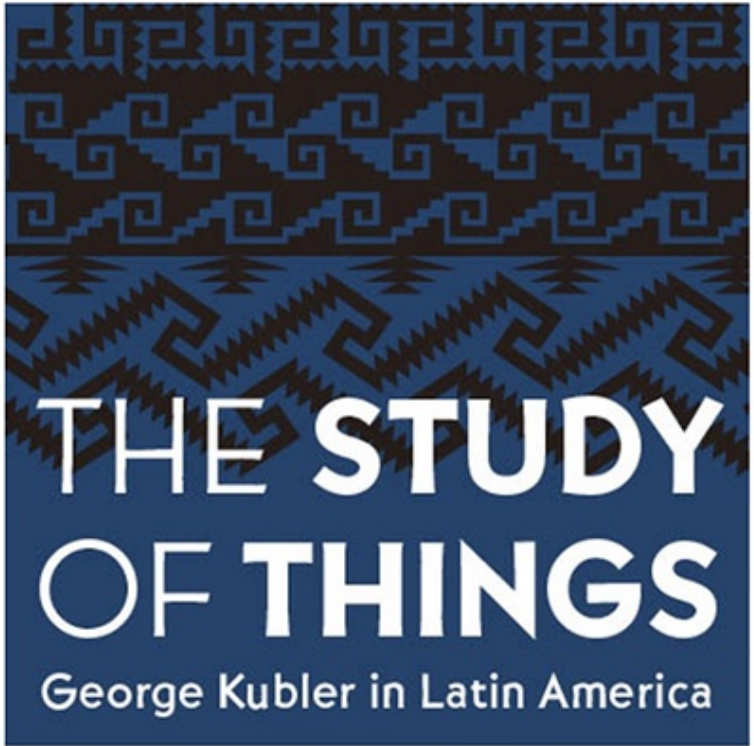
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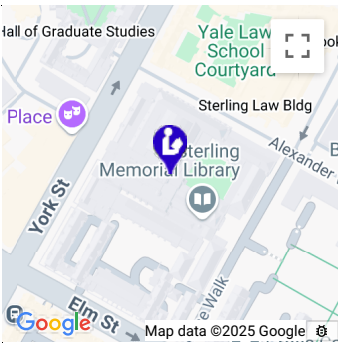


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Statistics Academic		
Enrollment	12,336	FTE Students
Collection size	13,796,100	volumes
Annual Circulation	373,600	transactions



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Previous Automation System	NOTIS	1987
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Discovery Interface	Blacklight	2015
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Institutional Repository	Digital Commons	2013
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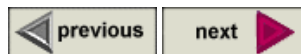
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Semiconductor manufacturing technology / Michael Quirk, Julian Serda.

Type of Work: Text

Registration Number / Date: TX0005323100 / 2001-01-03

Title: Semiconductor manufacturing technology / Michael Quirk, Julian Serda.

Imprint: Upper Saddle River, NJ : Prentice Hall, c2001.

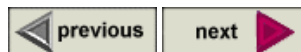
Description: 666 p.

Copyright Claimant: Prentice Hall, Inc.

Date of Creation: 2000

Date of Publication: 2000-11-09

Names: [Quirk, Michael](#)
[Serda, Julian](#)
[Prentice Hall, Inc.](#)



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APPENDIX 1012F

EX1012F

Citations to Quirk

Source Document

Quirk, M., & Serda, J. (2001, October). *Semiconductor manufacturing technology*. Upper Saddle River, NJ: Prentice Hall.

Citations: 2001 – 2001 (in chronological order)

Ouyang, L. H. (2001, December). Fabrication and characterization of RF-magnetron sputtered gallium arsenide, arsenic selenium telluride, and silicon thin films. Doctoral dissertation of the Washington University in St. Louis.

Tran, H. V. (2002, May). *Materials for advanced microlithography: Polymers for 157 nm lithography and acid diffusion* measurements. Doctoral dissertation of the University of Texas at Austin.

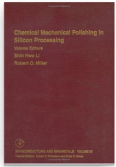
Cacciato, A., Nelson, S., Diekema, M., Hendriks, M., van Marwijk, L., Deuper, C., ... & Dormans, D. (2002, September). Reduction of Bitline to Control Gate Leakage for Improved Embedded 0.18 um FLASH Yield and Reliability. In *32nd European Solid-State Device Research Conference* (pp. 355-358). IEEE.

Young, R. B., Scott, T. L., & Prisbrey, K. A. (2002, October). Control of chlorine inductively coupled plasma using optical-emission spectroscopy. *Journal of electronic materials*, 31, 994-998.

Pei, Z. J., & Strasbaugh, A. (2002, November). Fine grinding of silicon wafers: grinding marks. In *ASME International Mechanical Engineering Congress and Exposition* (Vol. 36428, pp. 311-320).

Shah, V. K. (2002). *Development of a new generation polyurethane polishing pad used in chemical mechanical planarization of microelectronic materials*. Master's thesis of the University of Massachusetts Lowell.

APPENDIX 1013A



BOOK
Chemical mechanical polishing in silicon processing / volume editors, Shin Hwa Li, Robert O. Miller.
Li, Shin Hwa.; Miller, Robert O., 1947-
©2000
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Title	Chemical mechanical polishing in silicon processing / volume editors, Shin Hwa Li, Robert O. Miller.
Creator / Contributor	Li, Shin Hwa. > Miller, Robert O., 1947- >
Publisher	San Diego, CA : Academic Press, ©2000.
Creation date	©2000
Format	xv, 307 pages : illustrations ; 24 cm
Series	Semiconductors and semimetals ; v. 63 > Semiconductors and semimetals ; v. 63. >
Notes	Includes bibliographical references and indexes.
Additional forms	Also issued online.
Subject	silicon > Grinding and polishing > Silicon > Fisica geral > GRINDING (MATERIAL REMOVAL) > POLISHING > SILICON > Silicium > Semiconducteurs > Silicon >
Related titles	Available in other form: Online version: Chemical mechanical polishing in silicon processing. San Diego, CA : Academic Press, ©2000 >
Is Part Of	Host bibliographic record for boundwith item barcode C057767990 >
Identifier	ISBN : 0127521720 ISBN : 9780127521725
Source	Library Catalog

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050 14$aQC612.S4 $bW5 v.63 2000
082 04$a671.72 $221
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260 ##$aSan Diego, CA : $bAcademic Press, $c©2000.
300 ##$axv, 307 pages : $billustrations ; $c24 cm
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530 ##$aAlso issued online.
504 ##$aIncludes bibliographical references and indexes.
650 #0$aGrinding and polishing. $0http://id.loc.gov/authorities/subjects/sh85057370
650 #0$aSilicon. $0http://id.loc.gov/authorities/subjects/sh85122512
650 #2$aSilicon $0https://id.nlm.nih.gov/mesh/D012825
650 #6$aSilicium.
650 #7$aSilicon. $2aat
650 #7$aGrinding and polishing. $2fast $0(0CoLC)fst00947952
650 #7$aSilicon. $2fast $0(0CoLC)fst01118631
650 #7$aFisica geral. $2larpcal
650 #7$aGRINDING (MATERIAL REMOVAL) $2nasat
650 #7$aPOLISHING. $2nasat
650 #7$aSILICON. $2nasat
650 #7$aSilicium. $2ram
650 #7$aSemiconducteurs. $2ram
776 08$iOnline version: $tChemical mechanical polishing in silicon processing. $dSan Diego, CA : Academic Press, ©2000 $w(0CoLC)6063
700 1#$aLi, Shin Hwa.
700 1#$aMiller, Robert O., $d1947- $0http://id.loc.gov/authorities/names/no00001106
830 #0$aSemiconductors and semimetals ; $vv. 63. $0http://id.loc.gov/authorities/names/n84710010
908 ##$aWorldCat Daily Updates 2022-04-22 $bWorldCat record variable field(s) change: 650
908 ##$aWorldCat Daily Updates 2022-11-09 $bWorldCat record variable field(s) change: 040, 300, 856, LDR
908 ##$aWorldCat Daily Updates 2023-10-21 $bWorldCat record variable field(s) change: 040, 245, 504
910 ##$aHas related records (UCB)
968 ##$aReclvl: f Addate: 000229 Addid: OCL Moddate: 080528 Modid: XRF $9LOCAL
990 ##$aENGI; $bQC612.S4.W5 v.63; $cSLF: anal. $9LOCAL
996 ##$eGLADN50803621 $9LOCAL
996 ##$ab134233864 $bUpdated: 12-28-20 $cCreated: 03-26-09 $dCatDate: 02-29-00 $9LOCAL

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APPENDIX 1013B

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search:

University of California Library at Berkeley

University of California -- Berkeley

Address: Doe Library, Campanile Way
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94720-6000
United States

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Phone: 510-643-4331

Connect to: [Library Web Site](#) ✓ [Online Catalog](#)

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Permalink:  <https://librarytechnology.org/library/11>
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Administration: The director of the library is **Suzanne Wones** .

Organizational structure: The library is part of a **publicly-funded** organization. It operates on a **Non-profit** financial model.

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Affiliations: The library is a member of the [Association of Research Libraries](#)

Statistics Academic		
Enrollment	43,584	FTE Students
Collection size	16,217,948	volumes
Annual Circulation	707,825	transactions



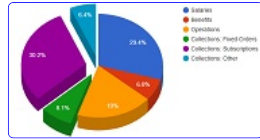
University of California Library at Berkeley



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Technology Profile

	Product Name	Year Contracted
Current Automation System	Alma	2019
Previous Automation System	Millennium	2008
Previous Automation System	Locally developed	1972
Discovery Service (w/index)	Ex Libris CDI	2019
Previous Discovery Index	EBSCO Discovery Service	2015
Discovery Interface	Primo	2019
Authentication Service	EZproxy	2017
Previous Authentication Service	Locally Developed	
Digital Collection Management	TIND Digital Archive	
Institutional Repository	TIND IR	

The library participates in the shared automation system provided by the [University of California \(view map\)](#)

This library is responsible for the procurement of the library automation system.

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Identifiers	
libraries.org ID	11
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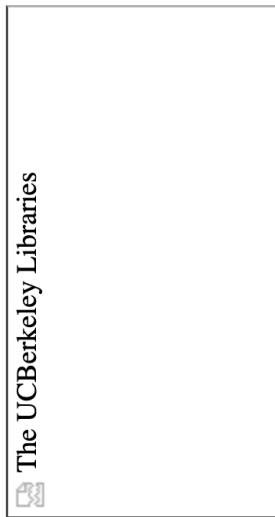
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The Wayback Machine - https://web.archive.org/web/19990117024322/http://sunsite2.berkeley.edu:8000/



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Try new features in our [Experimental version of Pathfinder](#). You can query all the Melvyl article databases with one search. Also, several new databases from SilverPlatter are available through the Experimental Pathfinder interface.

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APPENDIX 1013C

Title	Chemical mechanical polishing in silicon processing / volume editors, Shin Hwa Li, Robert O. Miller.
ISBN	0127521720
Published	San Diego, CA : Academic Press, [1999], c2000.
Physical Description	xv, 307 p. : ill. ; 24 cm.
Format	 Books
Language	English
Added to Catalog	June 01, 2002
Series	Semiconductors and semimetals, 0080-8784 ; v. 63
Bibliography	Includes bibliographical references and index.
Subjects	Grinding and polishing. Silicon.
Also listed under	Li, Shin Hwa Miller, Robert O.
Bookmark As	https://search.library.yale.edu/catalog/448182
Citation	2 Cite
Available from:	Library Shelving Facility (LSF) QC610.9 S47 63 (LC) Request for pickup → Request scan of article / chapter → Send to home address → ✓ Available
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260	a San Diego, CA : b Academic Press, c [1999], c2000.
300	a xv, 307 p. : b ill. ; c 24 cm.
440 0	a Semiconductors and semimetals, x 0080-8784 ; v v. 63
504	a Includes bibliographical references and index.
650 0	a Grinding and polishing.
650 0	a Silicon.
700 1	a Li, Shin Hwa.
700 1	a Miller, Robert O.
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902	a Marx Library b Library Shelving Facility (LSF) >> QC610.9 S47 63 (LC) DELIM 4868380
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948	a AS/jlk
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Subject Authorities

Variants from 956520 (matched with [Grinding and polishing])

- Buffing
- Lapping
- Polishing

Timestamp: 2024-08-26T15:49:07.989Z

Variants from 990460 (matched with [Silicon])

Silicium

Timestamp: 2024-08-26T15:49:17.742Z

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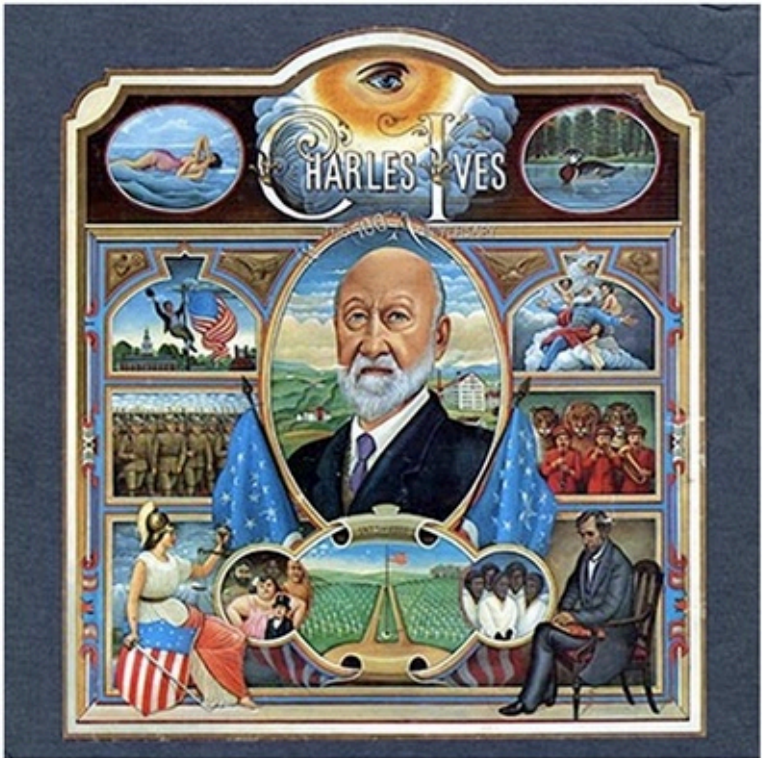
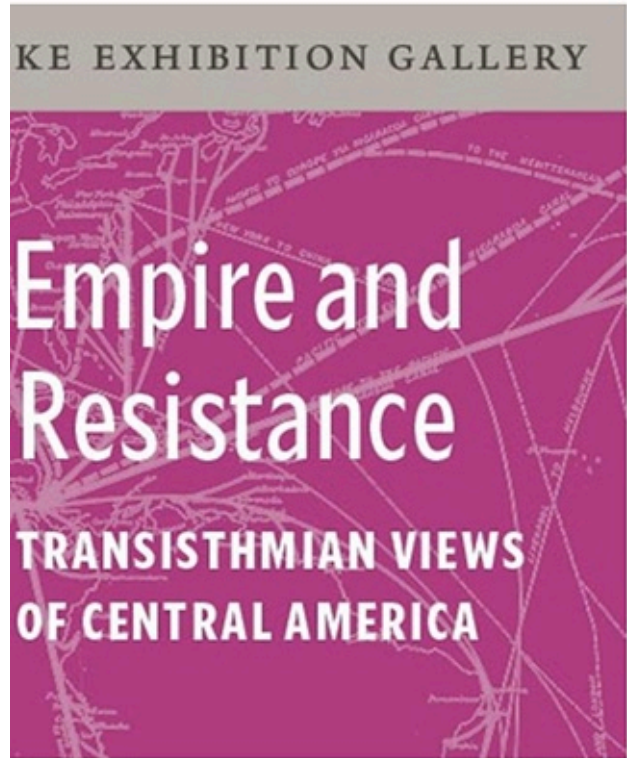
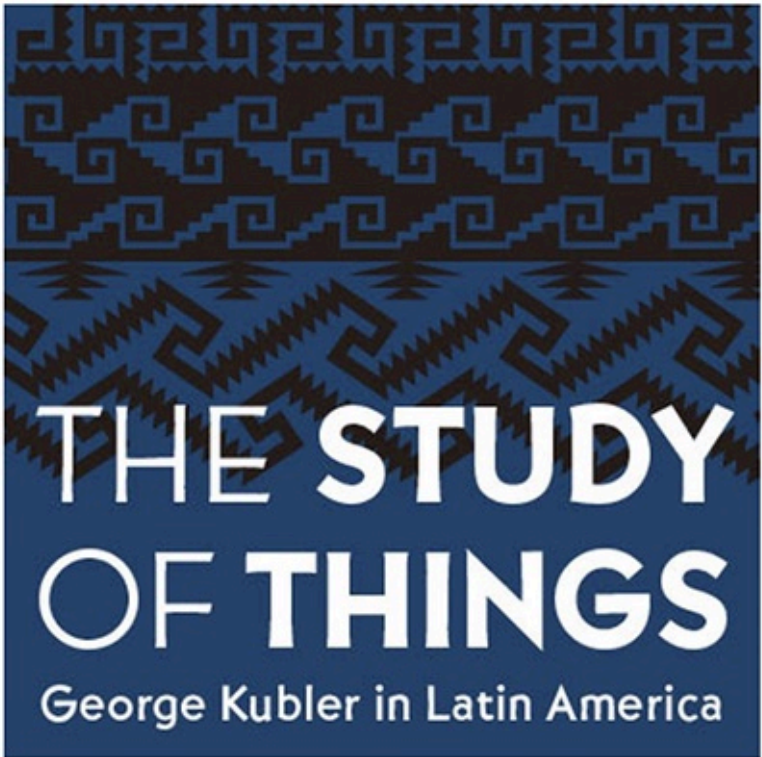
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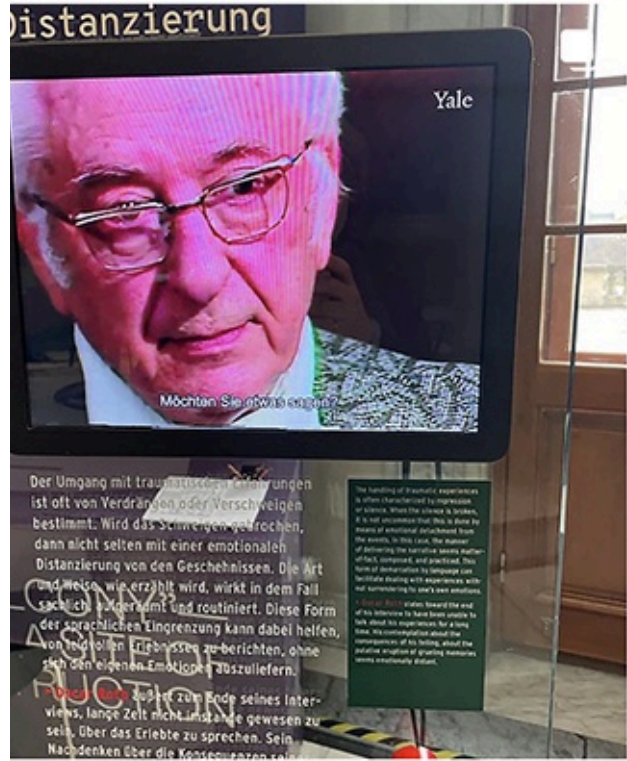


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You frame my thoughts and fashion me within,
You stop my tounge, and teach my hart to speake,
You calme the storme that passion did begin,
Strong thrugh your cause, but by your vertue weak.
Dark is the world, where your light shined never;
Well is he borne, that may behold you ever.

—Edmund Spenser, Amoretti #8



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APPENDIX 1013D

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Yale University Library

Yale University

Address: 120 High Street
New Haven, Connecticut
06520-8240
United States

Phone: 203-432-0492

Connect to: [Library Web Site](#) ✓ [Online Catalog](#)

Library details: **Yale University Library** is an **Academic** library.
This library is affiliated with **Yale University** ([view map](#)) . The collection of the library contains **13,796,100** volumes. The library circulates **373,600** items per year. The library serves a population of **12,336** FTE Enrollment.

Permalink:  <https://librarytechnology.org/library/2280>
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Administration: The director of the library is **Barbara Rockenbach** .

Organizational structure: The library is part of a **privately-funded** organization. It operates on a **Non-profit** financial model.

Academic Level: The library Serves an educational institution at the **University** level. The Carnegie Foundation designates this institution as: **Doctoral Universities: Very High Research Activity** (level 15).

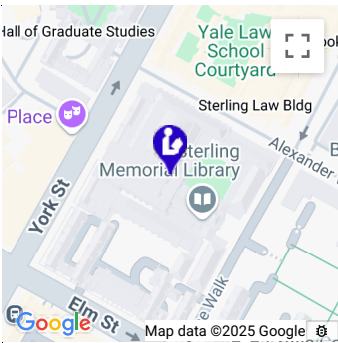


Affiliations: The library is a member of the [Association of Research Libraries](#)

Statistics Academic		
Enrollment	12,336	FTE Students
Collection size	13,796,100	volumes
Annual Circulation	373,600	transactions



Yale University Library



map location ✓

Related Libraries

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Current Automation System	Alma	2023
Previous Automation System	Voyager	2001
Previous Automation System	NOTIS	1987
Discovery Service (w/index)	Ex Libris CDI	2013
Discovery Interface	Blacklight	2015
Digital Collection Management	Locally Developed	2021
Institutional Repository	Digital Commons	2013
Digital Preservation	Preservica	2015
Archives Management	ArchivesSpace	
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Item ID Type	Barcode	

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WorldCat Registry ID	544
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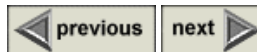
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Search Request: Left Anchored Title = Chemical Mechanical Polishing in Silicon Process

Search Results: Displaying 1 of 1 entries



Labeled View

Chemical mechanical polishing in silicon processing : vol. 63 / editors,...

Type of Work: Text

Registration Number / Date: TX0005090060 / 1999-11-17

Title: Chemical mechanical polishing in silicon processing : vol. 63 / editors, Shin Hwa Li, Robert O. Miller.

Imprint: San Diego : Academic Press, c2000.

Description: 307 p.

Series: Semiconductors and semimetals

Copyright Claimant: Academic Press (employer for hire)

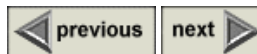
Date of Creation: 1999

Date of Publication: 1999-10-15

Variant title: Chemical mechanical polishing in silicon processing : vol. 63

Other Title: Semiconductors and semimetals

Names: [Li, Shin Hwa](#)
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APPENDIX 1013F

EX1013F

Citations to Li

Source Document

Li, S. M. H., & Miller, R. M. eds. (1999). *Chemical Mechanical Polishing in Silicon Processing*. (Semiconductors and Semimetals, vol. 63). Academic press.

Citations: 2000 – 2002 (in chronological order)

Dutta, P. S., Gutmann, R. J., Keller, D., & Sweet, L. (2000). A Novel Single Step Lapping and Chemo-Mechanical Polishing Scheme for Antimonide Based Semiconductors Using 1 μ m Agglomerate-Free Alumina Slurry. *MRS Proceedings*, 613, E4.1.1. doi:10.1557/PROC-613-E4.1.1

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APPENDIX 1014A

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BOOK

Microchip fabrication : a practical guide to semiconductor processing

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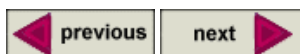
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Title: Microchip fabrication : a practical guide to semiconductor processing / Peter VanZant.

Edition: 3rd ed.

Imprint: New York : McGraw-Hill, c1997.

Description: 623 p.

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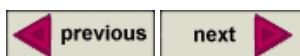
Date of Publication: 1996-11-25

Previous Registration: Prev. reg. 1990, TX 2-833-345.

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Record info:

Format	Book
Author/Creator	Van Zant, Peter. Browse in author list
Published/Created	New York : McGraw-Hill, c1997.
Edition	3rd ed.
Language	English
Physical Description	xvi, 623 p. : ill. ; 24 cm
Bibliography	Includes bibliographical references and index.
ISBN	0070672504
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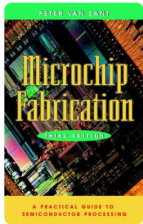


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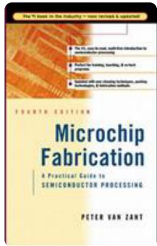


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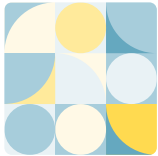
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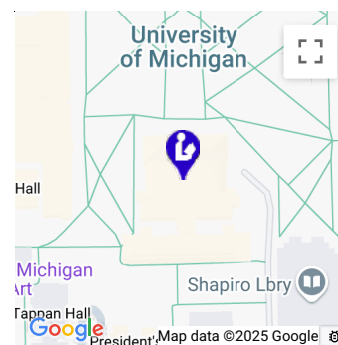


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Discovery Interface	Locally Developed	2018
Previous Discovery Interface	VuFind	2009
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Citations: 1998 – 1999 (in chronological order)

LaDou, J., & Rohm, T. (1998, January). The International Electronics Industry. *International Journal of Occupational and Environmental Health*, 4(1), 1–18. <https://doi.org/10.1179/oeh.1998.4.1.1>

Fountain, T. R. (1998). *Just enough die-level test: Optimizing IC test via machine learning and decision theory*. Doctoral dissertation, Oregon State University.

Gilles, P. N., Wu, D. J., Foster, C. B., Dillon, P. J., & Chanock, S. J. (1999, April). Single nucleotide polymorphic discrimination by an electronic dot blot assay on semiconductor microchips. *Nature biotechnology*, 17(4), 365-370.

Henderson, R. M. (1999, April). *Silicon-based micromachined packaging techniques for high-frequency applications*. University of Michigan.

El-Awady, K., Hansson, A., & Wahlberg, B. (1999, July). Application of iterative feedback tuning to a thermal cycling module. *IFAC Proceedings Volumes*, 32(2), 4664-4669.

White Jr, K. P., & Trybula, W. J. (1999, December). Operational simulation of an X-ray lithography cell: comparison of 200mm and 300mm wafers. In *Proceedings of the 31st conference on Winter simulation: Simulation---a bridge to the future-Volume 1* (pp. 865-874).

Bertino, E., Catania, B., Caglio, E. (1999). Applying Data Mining Techniques to Wafer Manufacturing. In: Żytkow, J.M., Rauch, J. (eds) *Principles of Data Mining and Knowledge Discovery*. PKDD 1999. Lecture Notes in Computer Science(), vol 1704. Springer, Berlin, Heidelberg.
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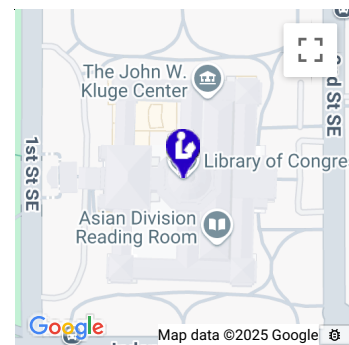
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Collection size	175,000,000	volumes
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Previous Automation System	Voyager	1998
Discovery Service (w/index)	Ex Libris CDI	
Electronic Resource Management	Electronic Resource Management	
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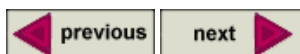
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Type of Work: Text

Registration Number / Date: TX0006019599 / 2004-08-24

Title: Microchip fabrication : a practical guide to semiconductor processing / Peter VanZant.

Edition: 5th ed.

Imprint: New York : McGraw-Hill, c2004.

Description: 642 p.

Copyright Claimant: McGraw-Hill Hill Companies, Inc.

Date of Creation: 2004

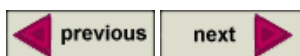
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Previous Registration: Prev. reg.

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Creator / Contributor	Van Zant, Peter. >
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Creation date	©2004
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Contents	The semiconductor industry -- Properties of semiconductor materials and chemicals -- Crystal growth and silicon wafer preparation -- Overview of wafer fabrication -- Contamination control -- Productivity and process yields -- Oxidation -- The 10-step patterning process-surface preparation to exposure -- The 10-step patterning developing to final inspection -- Advanced photolithography processes -- Doping -- Layer deposition

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