

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

RESMED CORP.

Petitioner

v.

FRACTUS, S.A.,

Patent Owner.

Case No. IPR2026-00341

U.S. Patent No. 8,362,960

**DECLARATION OF INGRID HSIEH-YEE, PH.D.
IN SUPPORT OF PETITION FOR *INTER PARTES* REVIEW OF
U.S. PATENT NO. 8,362,960**

TABLE OF CONTENTS

	Page
I. INTRODUCTION	3
A. Qualifications and Professional Experience	3
B. Scope of this Declaration	5
C. Evidence Considered in Forming My Opinions	5
II. AUTHENTICITY AND PUBLIC AVAILABILITY OF INOUE (EX. 1009)	6
A. Authentication	6
B. Public Availability	7
C. Usage Records	13
D. Summary of My Opinion on Inoue (Ex. 1009)	14
III. CONCLUSION	15

I, Ingrid Hsieh-Yee, declare as follows:

I. INTRODUCTION

1. I have been retained by Petitioner ResMed Corp. (“Petitioner” or “ResMed”) to serve as an independent expert consultant in the Inter Partes review proceedings regarding U.S. Patent No. 8,362,960 (“the ’960 patent”) (Ex. 1001). My opinions are set forth below.

2. I am being compensated for my work in this matter at my customary hourly rate. I am also being reimbursed for any reasonable expenses associated with my work and testimony in this proceeding. My compensation is not contingent on the results of my study, the substance of my opinions, or the outcome of the above matter(s).

A. Qualifications and Professional Experience

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

4. I was a professor in the Department of Library and Information Science of 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.

5. 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.

6. 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:

- CiNii (<https://cir.nii.ac.jp/>)
- DBpia (<https://www.dbpia.co.kr/>)

- Google Scholar (<https://scholar.google.com/>)
- IEICE Publication Search System
(https://www.ieice.org/publications/search/index.php?conts=inter_conf&lang=en) of the Institute of Electronics, Information and Communication Engineers (IEICE)
- Internet Archive (<https://archive.org/>)

B. Scope of this Declaration

7. I have been asked to offer an opinion on the public availability date of the following document: Inoue, Y. (2004, August). Pattern calibration free antenna by suppressing mutual coupling between elements. *IEICE Proceedings of ISAP 2004*, 1A2-4, **Ex. 1009** (“Inoue”).

C. Evidence Considered in Forming My Opinions

8. In forming my opinions expressed in this Declaration, I reviewed the following materials (and any other materials that I reference in this Declaration). Each of these is a type of material that experts in my field would reasonably rely upon when forming their opinions.

Ex. 1009	Inoue et al., “Pattern Calibration Free Antenna By Suppressing Mutual Coupling Between Elements,” Proceedings of ISAP’04, Sendai, Japan, 1A2-4 (2004)
Ex. 1023	IEICE Proceedings Archive entry for Inoue
Ex. 1024	Google Scholar Citation records
Appendix B	Copy of Inoue Paper from IEICE Proceedings Website
Appendix C	IEICE Proceedings Website Records Identifying and Linking to Inoue Paper

Appendix D	Internet Archive Records from IEICE Proceedings Website
Appendix E	Internet Archive Records for ISAP 2004 Registration Website
Appendix F	Citation history for Inoue, obtained from Google Scholar
Appendix G	Min, K. S., & Kim, D. J. (2005, June). Design for novel MIMO antenna with low mutual coupling. <i>한국통신학회 학술대회논문집</i> , 49-52.
Appendix H	DBpia index record for Min, K. S., & Kim, D. J. (2005, June). Design for novel MIMO antenna with low mutual coupling. <i>한국통신학회 학술대회논문집</i> , 49-52.
Appendix I	CiNii index record for Min, K.S., Kim, D.J., & Moon, Y.M. (July 2005) Novel Method of Mutual Coupling Suppression for MIMO Antenna System . IEICE technical report : 信学技報 105 (188), 77-82, 2005-07

II. AUTHENTICITY AND PUBLIC AVAILABILITY OF INOUE (EX. 1009)

A. Authentication

9. **Ex. 1009** is copy of “Pattern calibration free antenna by suppressing mutual coupling between elements,” (“Inoue”), by Yuki Inoue, Hirotake Sumi, and Hiroyuki Arai, *IEICE Proceedings of ISAP 2004*, 1A2-4. This copy is presented as **Ex. 1009** in this declaration.

10. Page 1 of **Ex. 1009** shows the title and authors, and identifies this article as “1A2-4” in the “Proceedings of ISAP’04, Sendai, JAPAN.” The bottom of this page shows a code of “C3055©IEICE” that identifies this article as C3055 with an IEICE copyright notice. This page also shows Inoue is published in a book with an ISBN (International Standard Book Number) of “4-88552-206-4.” **Ex. 1009** shows Inoue has a total of four pages, numbered 17 to 20, including ten color figures, four references, and two equations.

11. To authenticate **Ex. 1009**, I searched the IEICE Archive at https://www.ieice.org/eng_r/archive/index.html for Inoue and found a copy at https://www.ieice.org/publications/proceedings/bin/pdf_link.php?fname=1A2_4.pdf&iconf=ISAP&year=2004&vol=12&number=1A2-4&lang=E. This IEICE copy of Inoue is presented as **Appendix B** in this declaration. I have closely compared **Appendix B** and **Ex. 1009** and found them to be identical.

12. **Ex. 1009** is in a condition that creates no suspicion about its authenticity. Specifically, this copy is not missing any intermediate pages, and there are no visible alterations to the document. Furthermore, this copy is the same as the copy in the IEICE Archive (**Appendix B**). Based on my review, it is my opinion that **Ex. 1009** is authentic.

B. Public Availability

13. As evidence that interested users can discover and access Inoue on IEICE, I obtained files from the IEICE website to illustrate my discovery path. **Appendix C** is a true and correct copy of six files obtained from the IEICE website. I personally located, identified, and obtained these files. This exhibit shows that interested users can (1) begin their exploration at the IEICE Proceedings Series webpage, (2) select the link for ISAP to learn which proceedings are available, (3) select the link for the ISP 2004 conference proceedings, (4) select the link for Session 1A2, (5) select the link for 1A2-4 to view the summary record for Inoue, and (6) use

the download link to obtain a PDF version of Inoue. Specifically, pages 1 to 3 of **Appendix C** show conference proceedings listed on the IEICE Proceedings Series webpage at <https://www.ieice.org/publications/proceedings/>; pages 4 and 5 show available ISAP proceedings from 1971 to 2025; pages 8 to 13 show contents of the ISAP 2004 conference proceedings, and page 10 shows Session 1A2, DOA Estimation (1), took place on “2004/8/18” (*i.e.*, August 18, 2004); pages 14 to 17 show five papers presented at Session 1A2; pages 18 to 20 show the summary record for Inoue, and page 20 shows Inoue has four pages published on August 18, 2004 in an online journal whose ISSN (International Standard Serial Number) is “2188-5079.” The summary record also shows the DOI (Digital Object Identifier) of Inoue and a link for PDF download. Page 21 is a screen capture of the top of the PDF file. The summary record for Inoue on page 20 of **Appendix C** is the same as **Ex. 1023**.

14. IEICE is “Japan’s largest international academic society in the fields of electronics, information, and communications,” which was launched in May 1917, and changed its name to “The Institute of Electronics, Information and Communication Engineers (IEICE)” in 1987 (<https://www.ieice.org/global/history.html>). **Appendix D** is a true and correct copy of files from the IEICE website to show that by August 2004 interested users were able to discover and access the ISAP 2004 symposium proceedings that contains Inoue. I personally located, identified, and obtained these files. They are the type of

material experts in my field would reasonably rely upon when forming their opinions.

15. Page 1 of **Appendix D** is a screen capture of a Wayback Machine calendar that shows the IEICE website was archived 632 times between “16 Aug 2000” and “15 Apr 2026” and this particular copy was archived on “Sep 05 2004” (*i.e.*, September 5, 2004), available at <https://web.archive.org/web/20040905020140/http://www.ieice.org/eng/index.html>.

Page 2 is the PDF of this archived copy that shows links to societies and other IEICE resources, and includes a search box for IEICE contents. This archived copy shows that on September 5, 2004, interested users were able to find the IEICE website on the Internet to browse and search for contents of interest.

16. Page 3 of **Appendix D** is a screen capture of a Wayback Machine calendar that shows the webpage for the IEICE Communications Society was archived 292 times between “29 Sep 2000” and “4 Feb 2026” and this particular copy was archived on “AUG 13 2004” (*i.e.*, August 13, 2004), available at <https://web.archive.org/web/20040813011140/http://www.ieice.org/cs/>. Page 4 is the PDF of this archived copy that shows a link to “ISAP ’04-2004 International Symposium on Antennas and Propagation, Aug. 17-21, 2004.” This archived copy shows that interested users were able to discover this link to the ISAP 2004 symposium on the Internet on August 13, 2004.

17. The link to the ISAP 2004 symposium leads to the symposium website.

Page 5 of **Appendix D** is a screen capture of a Wayback Machine calendar that shows the symposium website was embedded in the Communications Society website. This screen capture shows the website was archived 292 times between “29 Sep 2000” and “4 Feb 2026” and this particular copy was archived on “AUG 13 2004” (*i.e.*, August 13, 2004), available at <https://web.archive.org/web/20040813011140/http://www.ieice.org/cs/>. Page 6 is the PDF of this archived copy that shows links to conference resources on the navigation panel on the left, and a webpage of “Important News and Dates” in the main display frame. Since this webpage is presented in a frame, I also obtained the original file. A screen capture on page 7 of **Appendix D** shows this original webpage of “Important News and Dates” was archived by Internet Archive on June 11, 2004, and available at https://web.archive.org/web/20040611173314fw_/http://www.ieice.org/cs/isap/2004/home.html. Pages 8 to 12 are the PDF of this archived copy that shows the “Advance Program (pdf)” was updated on June 10, 2004. It also shows a message about the symposium registration, stating that

Online registration is available through ISAP '04 Registration Desk on and before August 2, 2004. After August 3, please make registration on site. Early registration is strongly recommended. Those who registered on or before July 1 and deposited the fee by the end of July will be notified the ID and password which enable them to access the pdf files of proceedings papers online after August 3.

Appendix D at 6. This archived copy also informs visitors that online registration began in February 2004, “July 1, 2004” was the early registration deadline, and “August 2, 2004” was the online registration deadline. *Id.* This archived copy shows that by June 11, 2004, the symposium organizers had informed the public about the time period for online registration and indicated that after August 3, 2004, fully registered users would be provided the ID and password that would enable them to access the pdf files of proceedings papers online.

18. In addition to accessing proceedings papers online after August 3, 2004, interested users were also informed that the proceedings of the ISAP 2004 symposium would be included in the registration fee. **Appendix E** is a true and correct copy of two copies of the ISAP 2004 symposium online registration webpage. I personally located, identified, and obtained these two files on the IEICE website. They are the type of material experts in my field would reasonably rely upon when forming their opinions.

19. Page 1 of **Appendix E** is a screen capture of a Wayback Machine calendar that shows the online registration webpage of the ISAP 2004 symposium was archived nine times by Internet Archive between “28 Feb 2004” and available at <https://web.archive.org/web/20040228170710/http://www.knt.co.jp/ec/2004/isap2004/>. **Appendix E** at 1. Pages 2 to 4 are the PDF of this archived copy that shows the registration fees for regular participants and students include “Proceedings (CD-

ROM)” (see page 2). *Id.* at 2-4. The “Proceeding” area on page 3 explains that “A CD-ROM is included in registration fee” and users could purchase each additional CD-ROM for JPY 2,000. *Id.* at 3. It also explains that if users “would like a proceedings (CD-ROM) without attending symposium,” they could contact conference organizers. *Id.* This archived copy of the online registration form shows that by February 28, 2004, users interested in the ISAP 2004 symposium had been informed that the registration fee would include the proceedings on a CD-ROM when the symposium began.

20. Another archived copy of the online registration form archived by Internet Archive on March 13, 2005 shows the same information on registration fee, proceedings on CD-ROM and additional copies (see pages 6 and 7 of **Appendix E**). Appendix E at 7.

21. Taken together, web files on IEICE website (**Appendix D**) show that users who completed the online registration by the end of July 2004 would receive the ID code and password to access pdf files of proceedings articles online after August 3, 2004. Appendix D at 1. In addition, the online registration form (**Appendix E**) shows that participants of the ISAP 2004 symposium would receive the proceedings on CD-ROM at the conference in August 2004. Appendix E at 6-7. It is therefore my opinion that the proceedings of the ISAP 2004 symposium that contains Inoue became available to registrants of this symposium in August 2004.

C. Usage Records

22. Actual usage of a publication is reflected by other publications that make reference to it. I have reviewed the citation history of Inoue on Google Scholar, DBpia, and CiNii. DBpia is an online scholarly platform that provides access to authoritative Korean academic journals, magazines, and research publications. CiNii is a platform provided by the National Institute of Informatics (NII) of Japan to facilitate the discovery of bibliographic information, research data, project information, and other information related to research activities. **Appendix F** presents nine citations from Google Scholar published between 2005 and 2016. **Appendix F** at 1-2. These pages are the same as **Ex. 1024**. In addition, my research found that Inoue was cited by two articles in 2005:

(1) Min, K. S., & Kim, D. J. (2005, June), Design for novel MIMO antenna with low mutual coupling. *한국통신학회 학술대회논문집*, 49-52 (**Appendix G**); and

(2) Min, K.S., Kim, D.J., & Moon, Y.M. (July 2005), Novel Method of Mutual Coupling Suppression for MIMO Antenna System. IEICE technical report : 信学技報 105 (188), 77-82, 2005-07.

Appendices H and **I** include, respectively, the index record for the June 2005 citing article (**Appendix G**) from DBpia, and the index record for the July 2005 citing article from CiNii.

D. Summary of My Opinion on Inoue (Ex. 1009)

23. **Ex. 1009** is authentic because it is in a condition that creates no suspicion concerning its authenticity, and this copy is the same as the copy on the IEICE Archive (**Appendix B**).

24. Web files on IEICE Archive (**Appendix C**) show interested users could explore the Archive to discover and access Inoue. Archived web files on the IEICE website (**Appendix D**) show that by August 13, 2004 interested users would be able to discover the ISAP 2004 symposium website and learn that online registration completed by August 2, 2004, would enable registrants to access pdf files of proceedings articles online after August 3, 2004. In addition, archived copies of the online registration form for the ISAP 2004 symposium (**Appendix E**) show the conference registration fee included the proceedings on CD-ROM, meaning conference participants would receive the CD-ROM at the conference in August 2004. Citation history shows that two articles citing Inoue were published in June and July of 2005 (**Appendices G, H, and I**).

25. Based on the documents and records I have reviewed, it is my opinion that “Pattern calibration free antenna by suppressing mutual coupling between elements” by Yuki Inoue became available to registrants of the ISAP 2004 symposium in August 2004.

III. CONCLUSION

26. I declare that all statements made herein of my knowledge are true, and that all statements made on information and belief are believed to be true, and 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 Section 1001 of Title 18 of the United States Code.

Dated: 6-12-2026

By: Ingrid Hsieh-Yee
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
E-mail: hsiehyee@cua.edu

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 Archives, Repositories & Libraries; 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

Kimura, M., & Hsieh-Yee, I. (2026?). Relationships Recording in Authority and Bibliographic Data: What is Recorded and How Much? Manuscript to be submitted to *Cataloging & Classification Quarterly* in March 2026.

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.

Choi, Y., and Hsieh-Yee, I. (2010). Finding Images in an OPAC: Analysis of User Queries, Subject Headings, and Description Notes. *Canadian Journal of Information and Library Science*, 34(3): 271 – 295.

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

Vellucci, S. L., Hsieh-Yee, I., and Moen, W.E. (2007). The Metadata Education and Research Information Commons (MERIC): A Collaborative Teaching and Research Initiative. *Education for Information*, 25(3&4): 169-178.

NISO Framework for Guidelines for Building Good Digital Collections. 3rd ed. Baltimore, MD: National Information Standards Organization, 2007. Also available online: <http://www.niso.org/framework/framework3.pdf> (NISO Working Group members: Priscilla Caplan (chair), Grace Agnew, Murtha Baca, Tony Gill, Carl Fleischhauer, Ingrid Hsieh-Yee, Jill Koelling, and Christie Stephenson.)

- 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.
- Mitchell, Vanessa, and Ingrid Hsieh-Yee. (2007). Converting Ulrich's Subject Headings to FAST Headings: A Feasibility Study. *Cataloging & Classification Quarterly*, 45(1): 59-85.
- Hsieh-Yee, I., Tang, R., and Zhang, S. (2007). User Perceptions of a Federated Search System. *IEEE Technical Committee on Digital Libraries Bulletin*, Summer 3(2) (URL = <http://www.ieee-tcdl.org>).
- 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. Zweigig.
- 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.)

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 CRRRA portal themes*. Poster presented at the third CRRRA 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 CRRRA 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 CRRRA 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

PATTERN CALIBRATION FREE ANTENNA BY SUPPRESSING MUTUAL COUPLING BETWEEN ELEMENTS

Yuki INOUE, Hirotake SUMI and Hiroyuki ARAI
 Graduate School of Engineering Yokohama National University
 79-5 Tokiwadai, Hodogaya-ku, Yokohama-shi, 240-8501 Japan
 E-mail iyuki@arailab.dnj.ynu.ac.jp

1. Introduction

In recent years, there are a lot of studies about beam control or direction of arrival (DOA) estimation using an array antenna. The array element patterns are distorted and the results are often changed for the worse. Pattern distortion is caused by the mutual coupling, arrangement error of elements and amplitude and phase error of RF circuit [1]. Various calibration methods array antenna and RF circuit all together was proposed [2], but generally these methods need special mechanism and complex processing. In practice, the calibration should be treated separately dividing into antenna and RF circuit. Calibration of RF circuit is comparatively easy using the calibration reference circuit [3], but calibration of array antenna is not easy to conduct because a coupling matrix of the array antenna is changed seriously on measurement environments.

This paper investigates a linear array antenna suppressed mutual coupling and variation between elements. If the mutual coupling is suppressed, the distortion of the element pattern and the effect of arrangement error of elements could be suppressed, and good performance could be realized without calibration of antenna. The array antenna system is evaluated with DOA estimation of ESPRIT method [4] in this paper. In section 2, the relation between coupling matrix of an array antenna and DOA estimation error is evaluated in computer simulation, and clarify the range of mutual coupling to minimize the estimation error. In section 3, microstrip patch array antenna with boxy metallic wall is designed and estimation error in ESPRIT is examined in a measurement of DOA estimation in anechoic chamber using the array antenna.

2. Scattering Matrix of an Array Antenna and DOA Estimation Error

In this section, estimation error in ESPRIT is examined changing the parameters of the scattering matrix and element numbers using computer simulation. Fig. 1 shows the array antenna and direction definition. The array antenna is a uniform linear array with half wavelength interval. The error around 90° becomes very large due to a linear array, so maximum error $E_{\max}$ is selected from $\theta = 0^\circ$ to 60° every 10° . The direction of $\theta = 0^\circ$ is the broad side direction of the array. The element number M is changed from 4 to 20 every 4 elements.

Fig. 2 shows the setting of scattering matrix S . S is assumed a Toeplitz matrix neglecting noise matrix N . The first column s is defined as

$$s = [A_1 e^{j\phi_1} \quad A_2 e^{j\phi_2} \quad \dots \quad A_M e^{j\phi_M}] \quad (1)$$

It is supposed that the return loss of each element A_1 was -14dB. Mutual coupling between neighbor elements A_2 is changed from -10dB to -50dB and the other coupling $A_{3,4,\dots,M}$ is in inverse proportion to the distance of the elements.

$$A_n = \frac{A_2}{n-1} \quad n=2, 3, \dots, M \quad (2)$$

Phase of $s_{\phi_{1,2,\dots,M}}$ are uniform random numbers. Amplitude and phase of N is a normal distribution and the standard deviation is NA_{std} and $N\phi_{std}$, respectively.

Fig. 3 shows maximum value of estimation error E_{max} as a function of mutual coupling A_2 . In this simulation, NA_{std} and $N\phi_{std}$ are 1dB and 5° , respectively and SNR is 20dB. E_{max} decreases steeply from $A_2 = -10$ dB to -30 dB and fluctuates subsequently. Fig. 4 shows E_{max} as a function of NA_{std} . $N\phi_{std}$ is set to NA_{std} [dB] $\times 5^\circ$. E_{max} become larger than 1° from the points that NA_{std} and $N\phi_{std}$ are 1dB and 5° respectively. From the above example, estimation error is minimized in $A_2 \leq -30$ dB, $NA_{std} \leq 1$ dB and $N\phi_{std} \leq 5^\circ$.

3. Measurement of the DOA estimation using a microstrip patch array antenna with boxy metallic wall

To achieve the specification of section 2, a low coupling patch array antenna is designed. Fig. 5 shows the configuration of an element of the array antenna. Mutual coupling of this antenna is suppressed by the boxy metallic wall around the microstrip patch. The wall is connected to the ground plane of the microstrip antenna. These antenna elements are arrayed by half wave length interval (Fig. 6). The size of the wall L_x , L_y , h_x and h_y was optimized with computer simulation to achieve -30 dB of mutual coupling between neighboring elements. The optimized parameter is $L_x=0.4\lambda$, $L_y=0.5\lambda$, $h_x=0.25\lambda$ and $h_y=0.2\lambda$ to obtain -33 dB of maximum of mutual coupling in experiment at 5GHz. Fig. 7 shows the S parameter between #2 and #3 of the array antenna. The characteristics were same and achieve -33 dB of mutual coupling.

Using the array antenna with boxy metallic wall, the estimation errors of ESPRIT are evaluated using 4 channel DBF array antenna at 5GHz inside of an anechoic chamber. Fig.8 shows the measurement setup. One transmission source installed in front of the array and the array antenna set on a rotator to change DOA. The receiver is calibrated with on the condition of $\theta = 0^\circ$ and patterns of the array antenna are not calibrated. The array antenna is changed to normal microstrip patch antenna (a) and with boxy metallic wall (b). The relation between DOA and the estimation error is shown in Fig.9. The maximum value of estimation error of (b) is 0.4° for $\theta < 25^\circ$ and is reduced 0.8° from (a), but the error of $25^\circ < \theta < 60^\circ$ is not reduced because the half power width of pattern is about 50° (Fig.10). From the above, low coupling microstrip patch array antenna with boxy metallic wall is effective for reduction of estimation error in ESPRIT.

4. Conclusion

This paper clarified relation between coupling matrix of array antenna and DOA estimation error in computer simulation and showed estimation error was minimized in $A_2 \leq -30$ dB, $NA_{std} \leq 1$ dB and $N\phi_{std} \leq 5^\circ$. A microstrip patch array antenna with boxy metallic wall was designed and estimation error in ESPRIT was examined in a measurement of DOA estimation in anechoic chamber. The error using the array antenna with boxy metallic wall was 0.4° for $\theta < 25^\circ$ and was reduced 0.8° from normal patch antenna.

Reference

- [1] Y.Inoue, K.Mori, H.Arai,"DOA estimation in consideration of the array element pattern", IEEE Proceedings Vehicular Technology Conference Spring 2002, vol.2, pp.745-748, May 2002.
- [2] H.M. Aumann, A.J.Fenn and F.G Willwerth, "Phased array antenna calibration and pattern prediction using mutual coupling measurements", Antenna and Propagation IEEE Trans, vol 37, no.7, pp.844-850, July 1989.
- [3] G.Tsoulos, J.McGeehan and M. Beach, "Space division multiple access (SDMA) filed trials Part2: Calibration and linearity issues", IEE Proc. Radar, Sonar Nabilg., col.145, No.1 pp.79-84, February 1998.
- [4] R.Roy and T.Kailath, "ESPRIT-Estimation of Signal Parameter via Rotational Invariance Techniques," IEEE Trans., vol.ASSP-37, pp.984-995, July 1989.

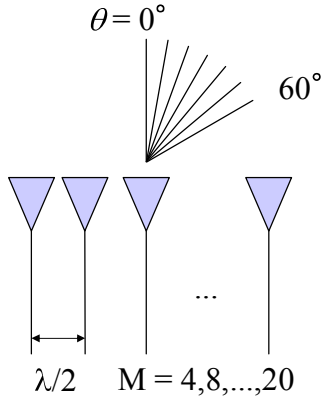


Fig. 1: Array antenna and direction.

$$\mathbf{S} = \begin{bmatrix} A_1 e^{j\phi_1} & A_2 e^{j\phi_2} & \dots & A_M e^{j\phi_M} \\ A_2 e^{j\phi_2} & A_1 e^{j\phi_1} & \ddots & \vdots \\ \vdots & \ddots & \ddots & A_2 e^{j\phi_2} \\ A_M e^{j\phi_M} & A_2 e^{j\phi_2} & A_1 e^{j\phi_1} & \vdots \end{bmatrix} + \mathbf{N}$$

Fig. 2: Scattering matrix.

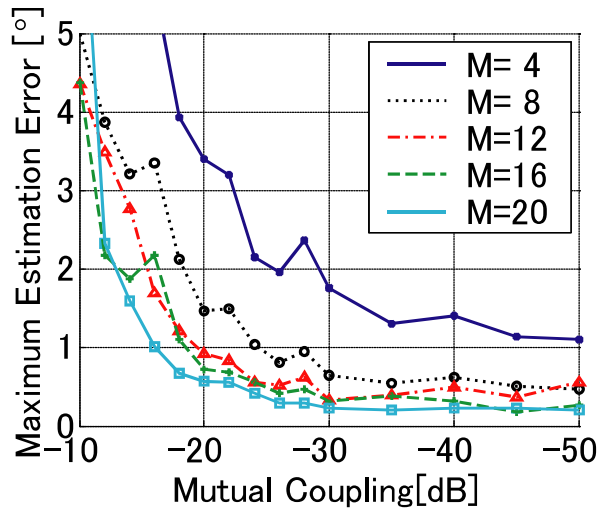


Fig.3: Maximum value of estimation error as a function of mutual coupling (NA_{std} : 1dB, $N\phi_{std}$: 5°).

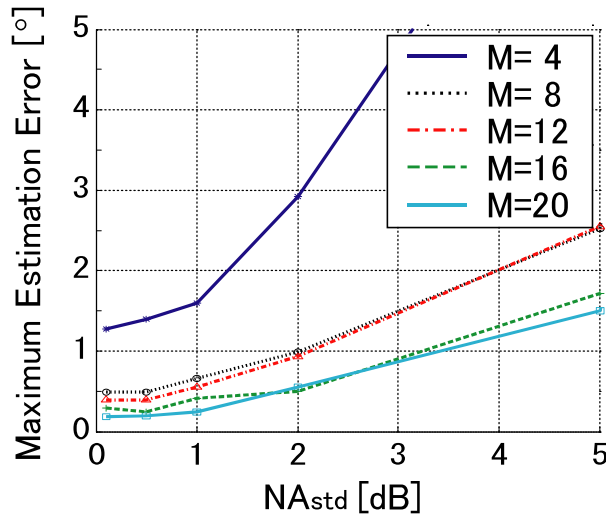


Fig.4: Maximum value of estimation error as a function of NA_{std} (A_2 : -30dB).

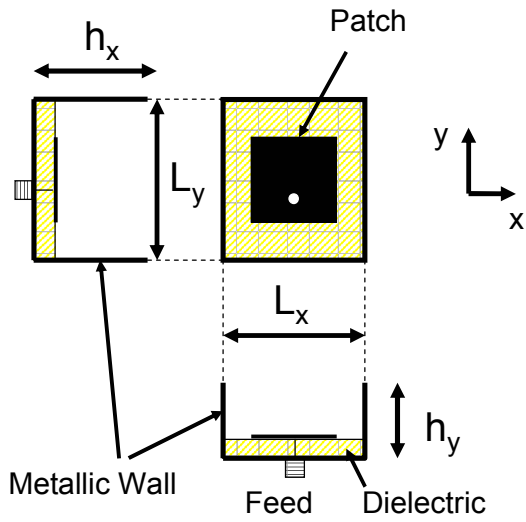


Fig.5: Boxy metallic wall microstrip antenna.

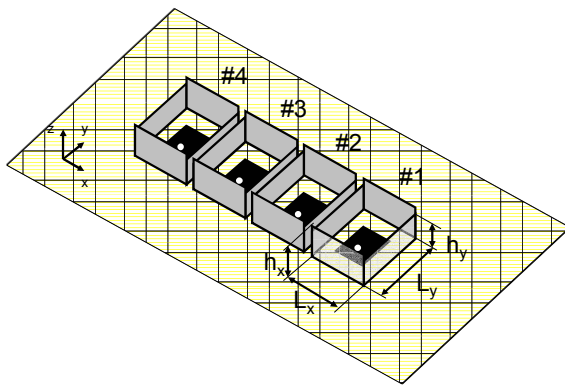


Fig.6: 4 elements liner array antenna with half wavelength interval.

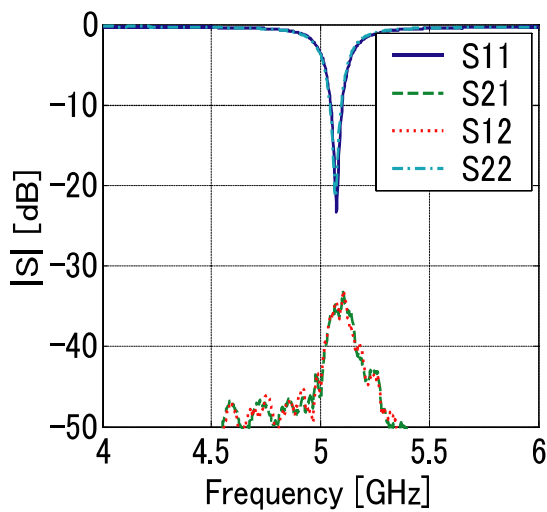


Fig.7: S parameters between #2 and #3.

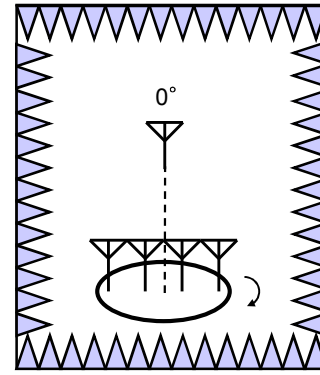


Fig.8: Measurement setup.

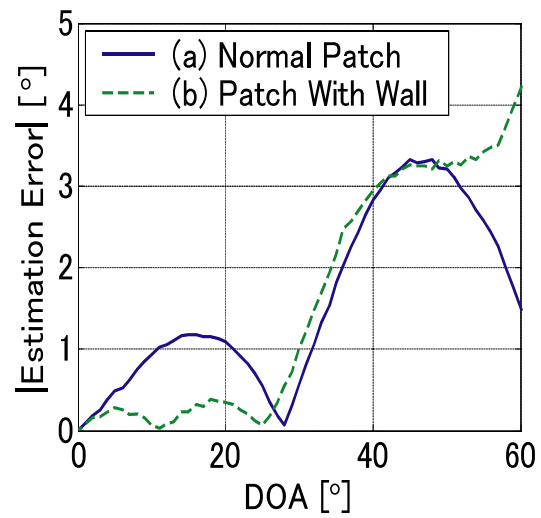


Fig.9: Estimation error.

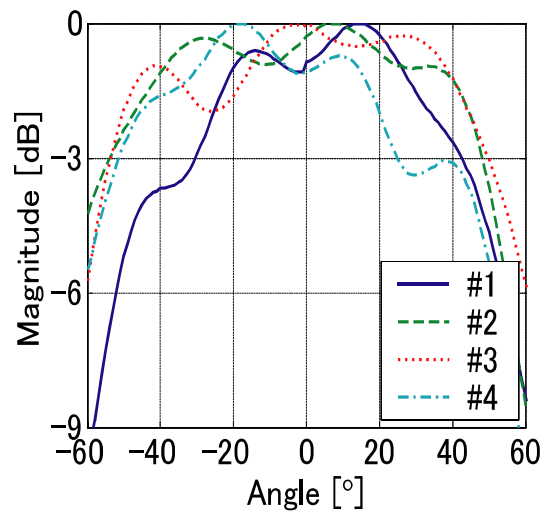


Fig.10: Element pattern. (xz-plane)

Appendix C

IEICE Proceeding Series

Conference List	
APCC	
APMC	
APNOMS	
APSITT	
ASPIRE WS	
EMC	
EMTS	
EXAT	
ICETC	
ICTF	
IIPPR	
IMQA	
ISAP	
ISITA	
ITC-CSCC	
IWCVAI	
KICSS	

MVA	
NOLTA	
OECC-IOOC	
SISA	
TJMW	
WCSIT	

ConferenceList

about IEICE Proceedings Series

• IEICE Proceedings Series could be retrieved which metadata have been prepared.	
APCC	2008, 2015, 2025
APMC	2022
APNOMS	2013, 2014, 2016, 2019, 2020, 2021, 2022
APSITT	2015
ASPIRE WS	2024
EMC	2004, 2009, 2014, 2019, 2024
EMTS	2013
EXAT	2019
ICETC	2020, 2021, 2022, 2023, 2024, 2025
ICTF	2013, 2014, 2015, 2016, 2017, 2018, 2020
IIPPR	2024
IMQA	2024
ISAP	1971, 1978, 1985, 1989, 1992, 1996, 2000, 2002, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2025
ISITA	2018, 2020, 2024
ITC-CSCC	2008, 2016
IWCVAI	2024
KICSS	2025
MVA	2023, 2025
NOLTA	2005, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2020, 2022, 2023, 2024
OECC-IOOC	2007

SISA	2019, 2021, 2022, 2023, 2024, 2025
TJMW	2024
WCSIT	2014

- The metadata will be continuously added until next few years for past international conferences.
- The metadata will be added for international conferences concurrently.
- Click here for [how to register the IEICE Proceedings Series \(https://www.ieice.org/jpn_r/about/kitei/conference.html?id=c\)](https://www.ieice.org/jpn_r/about/kitei/conference.html?id=c)

Copyright © IEICE. All rights reserved.

IEICE Proceeding Series

Conference List	
APCC	
APMC	
APNOMS	
APSITT	
ASPIRE WS	
EMC	
EMTS	
EXAT	
ICETC	
ICTF	
IIPPR	
IMQA	
ISAP	

2025 (session.php?expandable=12&iconf=ISAP&year=2025)
2016 (session.php?expandable=12&iconf=ISAP&year=2016)
2015 (session.php?expandable=12&iconf=ISAP&year=2015)
2014 (session.php?expandable=12&iconf=ISAP&year=2014)

2013 (session.php? expandable=12&iconf=ISAP&year=2013)
2012 (session.php? expandable=12&iconf=ISAP&year=2012)
2011 (session.php? expandable=12&iconf=ISAP&year=2011)
2010 (session.php? expandable=12&iconf=ISAP&year=2010)
2009 (session.php? expandable=12&iconf=ISAP&year=2009)
2008 (session.php? expandable=12&iconf=ISAP&year=2008)
2007 (session.php? expandable=12&iconf=ISAP&year=2007)
2006 (session.php? expandable=12&iconf=ISAP&year=2006)
2005 (session.php? expandable=12&iconf=ISAP&year=2005)
2004 (session.php? expandable=12&iconf=ISAP&year=2004)
2002 (session.php? expandable=12&iconf=ISAP&year=2002)
2000 (session.php? expandable=12&iconf=ISAP&year=2000)
1996 (session.php? expandable=12&iconf=ISAP&year=1996)
1992 (session.php? expandable=12&iconf=ISAP&year=1992)
1989 (session.php? expandable=12&iconf=ISAP&year=1989)
1985 (session.php? expandable=12&iconf=ISAP&year=1985)
1978 (session.php? expandable=12&iconf=ISAP&year=1978)
1971 (session.php? expandable=12&iconf=ISAP&year=1971)

ISITA
ITC-CSCC
IWCVAI

KICSS	
MVA	
NOLTA	
OECC-IOOC	
SISA	
TJMW	
WCSIT	

ConferenceList

about IEICE Proceedings Series

• IEICE Proceedings Series could be retrieved which metadata have been prepared.	
APCC	2008, 2015, 2025
APMC	2022
APNOMS	2013, 2014, 2016, 2019, 2020, 2021, 2022
APSITT	2015
ASPIRE WS	2024
EMC	2004, 2009, 2014, 2019, 2024
EMTS	2013
EXAT	2019
ICETC	2020, 2021, 2022, 2023, 2024, 2025
ICTF	2013, 2014, 2015, 2016, 2017, 2018, 2020
IIPPR	2024
IMQA	2024
ISAP	1971, 1978, 1985, 1989, 1992, 1996, 2000, 2002, 2004, 2005, 2006, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2025
ISITA	2018, 2020, 2024
ITC-CSCC	2008, 2016
IWCVAI	2024
KICSS	2025
MVA	2023, 2025

NOLTA	2005, 2007, 2008, 2009, 2010, 2011, 2012, 2013, 2014, 2015, 2016, 2017, 2020, 2022, 2023, 2024
OECC-IOOC	2007
SISA	2019, 2021, 2022, 2023, 2024, 2025
TJMW	2024
WCSIT	2014

- The metadata will be continuously added until next few years for past international conferences.
- The metadata will be added for international conferences concurrently.
- Click here for [how to register the IEICE Proceedings Series \(https://www.ieice.org/jpn_r/about/kitei/conference.html?id=c\)](https://www.ieice.org/jpn_r/about/kitei/conference.html?id=c)

Copyright © IEICE. All rights reserved.

IEICE Proceeding Series

Conference List	
APCC	
APMC	
APNOMS	
APSITT	
ASPIRE WS	
EMC	
EMTS	
EXAT	
ICETC	
ICTF	
IIPPR	
IMQA	
ISAP	

2025 (session.php?expandable=12&iconf=ISAP&year=2025)
2016 (session.php?expandable=12&iconf=ISAP&year=2016)
2015 (session.php?expandable=12&iconf=ISAP&year=2015)
2014 (session.php?expandable=12&iconf=ISAP&year=2014)

2013 (session.php? expandable=12&iconf=ISAP&year=2013)
2012 (session.php? expandable=12&iconf=ISAP&year=2012)
2011 (session.php? expandable=12&iconf=ISAP&year=2011)
2010 (session.php? expandable=12&iconf=ISAP&year=2010)
2009 (session.php? expandable=12&iconf=ISAP&year=2009)
2008 (session.php? expandable=12&iconf=ISAP&year=2008)
2007 (session.php? expandable=12&iconf=ISAP&year=2007)
2006 (session.php? expandable=12&iconf=ISAP&year=2006)
2005 (session.php? expandable=12&iconf=ISAP&year=2005)
2004 (session.php? expandable=12&iconf=ISAP&year=2004)
2002 (session.php? expandable=12&iconf=ISAP&year=2002)
2000 (session.php? expandable=12&iconf=ISAP&year=2000)
1996 (session.php? expandable=12&iconf=ISAP&year=1996)
1992 (session.php? expandable=12&iconf=ISAP&year=1992)
1989 (session.php? expandable=12&iconf=ISAP&year=1989)
1985 (session.php? expandable=12&iconf=ISAP&year=1985)
1978 (session.php? expandable=12&iconf=ISAP&year=1978)
1971 (session.php? expandable=12&iconf=ISAP&year=1971)

ISITA
ITC-CSCC
IWCVAI

KICSS	
MVA	
NOLTA	
OECC-IOOC	
SISA	
TJMW	
WCSIT	

ConferenceList

Search of Session List

2004 International Symposium on Antennas and Propagation (ISAP2004)

event date	session num	session
2004/8/18	1A1	Invited Talk (1) (article.php?expandable=12&iconf=ISAP&session_num=1A1&year=2004)
2004/8/18	1A2	DOA Estimation (1) (article.php?expandable=12&iconf=ISAP&session_num=1A2&year=2004)
2004/8/18	1A3	Invited Talk (2) (article.php?expandable=12&iconf=ISAP&session_num=1A3&year=2004)
2004/8/18	1A4	DOA Estimation (2) (article.php?expandable=12&iconf=ISAP&session_num=1A4&year=2004)
2004/8/18	1A5	DOA Estimation (3) (article.php?expandable=12&iconf=ISAP&session_num=1A5&year=2004)
2004/8/18	1B2	UWB Antennas (article.php?expandable=12&iconf=ISAP&session_num=1B2&year=2004)
2004/8/18	1B4	UWB Channels and Transmission (article.php?expandable=12&iconf=ISAP&session_num=1B4&year=2004)
2004/8/18	1B5	Small Antennas (article.php?expandable=12&iconf=ISAP&session_num=1B5&year=2004)
2004/8/18	1C2	EMC Measurements and Computations (article.php?expandable=12&iconf=ISAP&session_num=1C2&year=2004)

2004/8/18	1C4	Computational Electromagnetics(1) (article.php?expandable=12&iconf=ISAP&session_num=1C4&year=2004)
2004/8/18	1C5	Computational Electromagnetics(2) (article.php?expandable=12&iconf=ISAP&session_num=1C5&year=2004)
2004/8/18	1D2	Waveguiding Structures (article.php?expandable=12&iconf=ISAP&session_num=1D2&year=2004)
2004/8/18	1D4	Reflector /Lens Antennas and Feeds(1) (article.php?expandable=12&iconf=ISAP&session_num=1D4&year=2004)
2004/8/18	1D5	Reflector /Lens Antennas and Feeds(2) (article.php?expandable=12&iconf=ISAP&session_num=1D5&year=2004)
2004/8/18	1E2	Ionospheric and Magnetospheric Propagation (article.php?expandable=12&iconf=ISAP&session_num=1E2&year=2004)
2004/8/18	1E4	Antenna Measurements (article.php?expandable=12&iconf=ISAP&session_num=1E4&year=2004)
2004/8/19	2A1	Invited Talk (3) (article.php?expandable=12&iconf=ISAP&session_num=2A1&year=2004)
2004/8/19	2A2	MIMO(1) (article.php?expandable=12&iconf=ISAP&session_num=2A2&year=2004)
2004/8/19	2A3	MIMO(2) (article.php?expandable=12&iconf=ISAP&session_num=2A3&year=2004)
2004/8/19	2A4	MIMO(3) (article.php?expandable=12&iconf=ISAP&session_num=2A4&year=2004)
2004/8/19	2B2	Microstrip Antennas(1) (article.php?expandable=12&iconf=ISAP&session_num=2B2&year=2004)
2004/8/19	2B3	Microstrip Antennas(2) (article.php?expandable=12&iconf=ISAP&session_num=2B3&year=2004)
2004/8/19	2B4	Active Antennas (article.php?expandable=12&iconf=ISAP&session_num=2B4&year=2004)
2004/8/19	2C2	Periodic and Band-Gap Structures (article.php?expandable=12&iconf=ISAP&session_num=2C2&year=2004)
2004/8/19	2C3	Complex Media and Artificial Media (article.php?expandable=12&iconf=ISAP&session_num=2C3&year=2004)
2004/8/19	2C4	Computer Design of Antennas (article.php?expandable=12&iconf=ISAP&session_num=2C4&year=2004)
2004/8/19	2D2	Landmine Detection (article.php?expandable=12&iconf=ISAP&session_num=2D2&year=2004)
2004/8/19	2D3	Subsurface Sensing (article.php?expandable=12&iconf=ISAP&session_num=2D3&year=2004)
2004/8/19	2D4	Propagation and Radio Systems (article.php?expandable=12&iconf=ISAP&session_num=2D4&year=2004)
2004/8/19	2E2	High-Frequency Techniques (article.php?expandable=12&iconf=ISAP&session_num=2E2&year=2004)

2004/8/19	2E3	Scattering and Diffraction (article.php?expandable=12&iconf=ISAP&session_num=2E3&year=2004)
2004/8/19	2E4	Inverse Problems (article.php?expandable=12&iconf=ISAP&session_num=2E4&year=2004)
2004/8/20	3A1	Invited Talk (4) (article.php?expandable=12&iconf=ISAP&session_num=3A1&year=2004)
2004/8/20	3A2	Adaptive and Smart Antennas(1) (article.php?expandable=12&iconf=ISAP&session_num=3A2&year=2004)
2004/8/20	3A3	Adaptive and Smart Antennas(2) (article.php?expandable=12&iconf=ISAP&session_num=3A3&year=2004)
2004/8/20	3A4	Special Session (article.php?expandable=12&iconf=ISAP&session_num=3A4&year=2004)
2004/8/20	3B2	Printed Antennas (article.php?expandable=12&iconf=ISAP&session_num=3B2&year=2004)
2004/8/20	3B3	Multi-band Antennas (article.php?expandable=12&iconf=ISAP&session_num=3B3&year=2004)
2004/8/20	3C2	Mobile and Indoor Propagation(1) (article.php?expandable=12&iconf=ISAP&session_num=3C2&year=2004)
2004/8/20	3C3	Mobile and Indoor Propagation(2) (article.php?expandable=12&iconf=ISAP&session_num=3C3&year=2004)
2004/8/20	3D2	Millimeter and Sub-Millimeter Wave Antennas (article.php?expandable=12&iconf=ISAP&session_num=3D2&year=2004)
2004/8/20	3D3	Biological Effects and Medical Applications (article.php?expandable=12&iconf=ISAP&session_num=3D3&year=2004)
2004/8/20	3E2	Random Media and Scattering (article.php?expandable=12&iconf=ISAP&session_num=3E2&year=2004)
2004/8/20	3E3	Remote Sensing (article.php?expandable=12&iconf=ISAP&session_num=3E3&year=2004)
2004/8/20	POS-A	Antennas and Related Topics (article.php?expandable=12&iconf=ISAP&session_num=POS-A&year=2004)
2004/8/20	POS-B	Propagation and Related Topics (article.php?expandable=12&iconf=ISAP&session_num=POS-B&year=2004)
2004/8/20	POS-C	Electromagnetics and Related Topics (article.php?expandable=12&iconf=ISAP&session_num=POS-C&year=2004)
2004/8/20	POS-D	Systems and Related Topics (article.php?expandable=12&iconf=ISAP&session_num=POS-D&year=2004)
2004/8/20	POS-S	Special Topics (article.php?expandable=12&iconf=ISAP&session_num=POS-S&year=2004)
2004/8/21	4A1	Invited Talk(5) (article.php?expandable=12&iconf=ISAP&session_num=4A1&year=2004)
2004/8/21	4A2	Handset Antennas(1) (article.php?expandable=12&iconf=ISAP&session_num=4A2&year=2004)

2004/8/21	4A3	Handset Antennas(2) (article.php?expandable=12&iconf=ISAP&session_num=4A3&year=2004)
2004/8/21	4B2	Array Antennas(1) (article.php?expandable=12&iconf=ISAP&session_num=4B2&year=2004)
2004/8/21	4B3	Array Antennas(2) (article.php?expandable=12&iconf=ISAP&session_num=4B3&year=2004)
2004/8/21	4C2	SAR Polarimetry and Interferometry (article.php?expandable=12&iconf=ISAP&session_num=4C2&year=2004)
2004/8/21	4C3	Rader Polarimetry (article.php?expandable=12&iconf=ISAP&session_num=4C3&year=2004)
2004/8/21	4D2	ESPAR Antennas (article.php?expandable=12&iconf=ISAP&session_num=4D2&year=2004)
2004/8/21	4D3	Base Station Antennas (article.php?expandable=12&iconf=ISAP&session_num=4D3&year=2004)
2004/8/21	4E2	Earth-Space and Terrestrial Propagation(1) (article.php?expandable=12&iconf=ISAP&session_num=4E2&year=2004)
2004/8/21	4E3	Earth-Space and Terrestrial Propagation(2) (article.php?expandable=12&iconf=ISAP&session_num=4E3&year=2004)

Copyright © IEICE. All rights reserved.

IEICE Proceeding Series

Conference List	
APCC	
APMC	
APNOMS	
APSITT	
ASPIRE WS	
EMC	
EMTS	
EXAT	
ICETC	
ICTF	
IIPPR	
IMQA	
ISAP	

- 2025 (session.php?expandable=12&iconf=ISAP&year=2025)
- 2016 (session.php?expandable=12&iconf=ISAP&year=2016)
- 2015 (session.php?expandable=12&iconf=ISAP&year=2015)
- 2014 (session.php?expandable=12&iconf=ISAP&year=2014)

2013 (session.php? expandable=12&iconf=ISAP&year=2013)
2012 (session.php? expandable=12&iconf=ISAP&year=2012)
2011 (session.php? expandable=12&iconf=ISAP&year=2011)
2010 (session.php? expandable=12&iconf=ISAP&year=2010)
2009 (session.php? expandable=12&iconf=ISAP&year=2009)
2008 (session.php? expandable=12&iconf=ISAP&year=2008)
2007 (session.php? expandable=12&iconf=ISAP&year=2007)
2006 (session.php? expandable=12&iconf=ISAP&year=2006)
2005 (session.php? expandable=12&iconf=ISAP&year=2005)
2004 (session.php? expandable=12&iconf=ISAP&year=2004)
2002 (session.php? expandable=12&iconf=ISAP&year=2002)
2000 (session.php? expandable=12&iconf=ISAP&year=2000)
1996 (session.php? expandable=12&iconf=ISAP&year=1996)
1992 (session.php? expandable=12&iconf=ISAP&year=1992)
1989 (session.php? expandable=12&iconf=ISAP&year=1989)
1985 (session.php? expandable=12&iconf=ISAP&year=1985)
1978 (session.php? expandable=12&iconf=ISAP&year=1978)
1971 (session.php? expandable=12&iconf=ISAP&year=1971)

ISITA
ITC-CSCC
IWCVAI

KICSS	
MVA	
NOLTA	
OECC-IOOC	
SISA	
TJMW	
WCSIT	

ConferenceList

Search of article List

2004 International Symposium on Antennas and Propagation (ISAP2004)

number	title/author
1A2-1	MODELING OF ARRIVAL WAVE DISTRIBUTION FOR MOBILE ADAPTIVE ARRAY ANTENNA IN SUBURBAN AREA (summary.php?expandable=12&iconf=ISAP&session_num=1A2&number=1A2-1&year=2004) Hideaki Okamoto,
1A2-2	2D DOA ESTIMATION USING BEAM STEERING ANTENNA BY THE SWITCHED PARASITIC ELEMENTS (summary.php?expandable=12&iconf=ISAP&session_num=1A2&number=1A2-2&year=2004) Takumi Matsumoto,
1A2-3	DOA ESTIMATION MEASUREMENT USING FABRICATED 4-CH LOW-IF RECEIVER (summary.php?expandable=12&iconf=ISAP&session_num=1A2&number=1A2-3&year=2004) Kyeong-Sik Min,
1A2-4	PATTERN CALIBRATION FREE ANTENNA BY SUPPRESSING MUTUAL COUPLING BETWEEN ELEMENTS (summary.php?expandable=12&iconf=ISAP&session_num=1A2&number=1A2-4&year=2004) Yuki Inoue,
1A2-5	DOA ESTIMATION SYSTEM BY A SYNTHESIZED VIRTUAL PLANAR ARRAY USING PILOT SIGNALS (summary.php?expandable=12&iconf=ISAP&session_num=1A2&number=1A2-5&year=2004) Akimichi Hirota,

Copyright © IEICE. All rights reserved.

IEICE Proceeding Series

Conference List	
APCC	
APMC	
APNOMS	
APSITT	
ASPIRE WS	
EMC	
EMTS	
EXAT	
ICETC	
ICTF	
IIPPR	
IMQA	
ISAP	

- 2025 (session.php?expandable=12&iconf=ISAP&year=2025)
- 2016 (session.php?expandable=12&iconf=ISAP&year=2016)
- 2015 (session.php?expandable=12&iconf=ISAP&year=2015)
- 2014 (session.php?expandable=12&iconf=ISAP&year=2014)

2013 (session.php? expandable=12&iconf=ISAP&year=2013)
2012 (session.php? expandable=12&iconf=ISAP&year=2012)
2011 (session.php? expandable=12&iconf=ISAP&year=2011)
2010 (session.php? expandable=12&iconf=ISAP&year=2010)
2009 (session.php? expandable=12&iconf=ISAP&year=2009)
2008 (session.php? expandable=12&iconf=ISAP&year=2008)
2007 (session.php? expandable=12&iconf=ISAP&year=2007)
2006 (session.php? expandable=12&iconf=ISAP&year=2006)
2005 (session.php? expandable=12&iconf=ISAP&year=2005)
2004 (session.php? expandable=12&iconf=ISAP&year=2004)
2002 (session.php? expandable=12&iconf=ISAP&year=2002)
2000 (session.php? expandable=12&iconf=ISAP&year=2000)
1996 (session.php? expandable=12&iconf=ISAP&year=1996)
1992 (session.php? expandable=12&iconf=ISAP&year=1992)
1989 (session.php? expandable=12&iconf=ISAP&year=1989)
1985 (session.php? expandable=12&iconf=ISAP&year=1985)
1978 (session.php? expandable=12&iconf=ISAP&year=1978)
1971 (session.php? expandable=12&iconf=ISAP&year=1971)

ISITA
ITC-CSCC
IWCVAI

KICSS	
MVA	
NOLTA	
OECC-IOOC	
SISA	
TJMW	
WCSIT	

ConferenceList

Summary

International Symposium on Antennas and Propagation

2004

Session Number:1A2

Session:

Number:1A2-4

PATTERN CALIBRATION FREE ANTENNA BY SUPPRESSING MUTUAL COUPLING BETWEEN ELEMENTS

Yuki Inoue,

pp.17-20

Publication Date:2004/8/18

Online ISSN:2188-5079

DOI:10.34385/proc.12.1A2-4 (<https://doi.org/10.34385/proc.12.1A2-4>)

 PDF download (489.4KB)

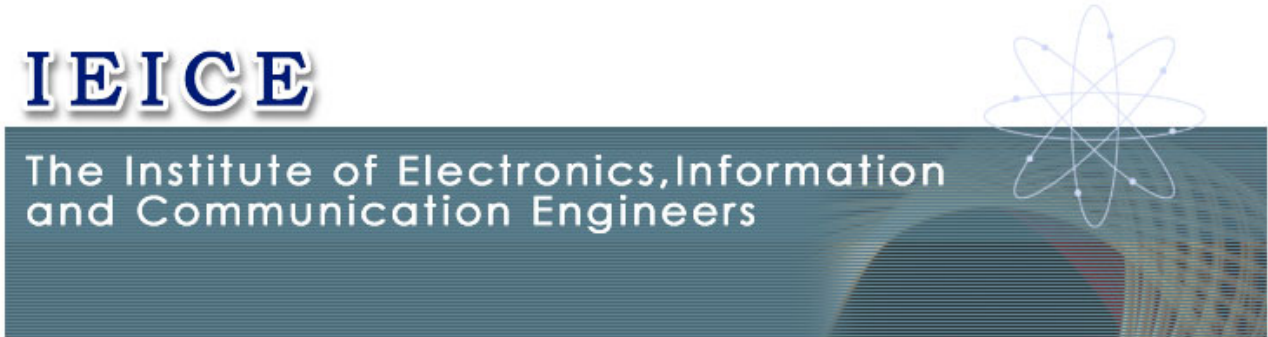
(bin/pdf_link.php?fname=1A2_4.pdf&iconf=ISAP&year=2004&vol=12&number=1A2-4&lang=E)

Summary:

Copyright © IEICE. All rights reserved.

Appendix D

The Wayback Machine - https://web.archive.org/web/20040905020140/http://www.ieice.org:80/eng/index.html



Societies

Engineering Sciences Society

Communications Society

Electronics Society

Information and Systems Society

Human Communication Group

About the IEICE

Trans. Online & ELEX

Conferences and Workshops

Membership

For Authors

Outside Link

For Students

Overseas area

Journal & Books

 Join IEICE

Search String

Search!

Display 20

Description ON

Sort score

Language English



Copyright (c) by IEICE

Web master::webmaster@ieice.org

Communications Society

You are the 688th guest to this page.

For Japanese Page
Click [HERE](#).

What's NEW!

 Call for paper IEICE General Conference 2004 (NEW)

 [Calling for Papers for "APSITT 2003", Nov. 25-26, 2003 University of New Caledonia, Noumea, New Caledonia](#)

 [Calling for Papers for "WTC/ISS 2004", Sep. 12-15, 2004 Seoul, Korea](#)

 [OECC/COIN2004 \(9th OptoElectronics and Communications Conference/3rd International Conference on Optical Internet\), Jul. 12-16, 2004 Yokohama, Japan](#)

ISAP '04-2004 International Symposium on Antennas and Propagation, Aug. 17-21, 2004

[EMC'04/Sendai, Jun. 1-4, 2004 Sendai, Japan \(NEW\)](#)

The Wayback Machine - <https://web.archive.org/web/20040813011140/http://www.ieice.org:80/cs/>

The IEICE **Communications Society**

You are the 688 th guest to this page.

For Japanese Page
Click [HERE](#).

What's NEW!

 [Call for paper IEICE General Conference 2004](#)(NEW)

 [Calling for Papers for "APSITT 2003", Nov. 25-26, 2003 University of New Caledonia, Noumea, New Caledonia](#)

 [Calling for Papers for "WTC/ISS 2004", Sep. 12-15, 2004 Seoul, Korea](#)

 [OECC/COIN2004 \(9th OptoElectronics and Communications Conference/3rd International Conference on Optical Internet\), Jul. 12-16, 2004 Yokohama, Japan](#)

 [ISAP '04-2004 International Symposium on Antennas and Propagation, Aug. 17-21, 2004](#)

 [EMC'04/Sendai, Jun. 1-4, 2004 Sendai, Japan](#)(NEW)

 [APCC/MDMC'04, Aug. 29-Sep. 1, 2004 Beijing, China](#)(NEW)

 IEICE Communications Society Global News Letter [Vol.1](#) [Vol.2](#) [Vol.3](#) [Vol.4](#) [Vol.5](#) [Vol.6](#)(NEW)

Introduction to Communications Society

► [Communications Society Steering Committee](#)

Membership

► [About CS Overseas Membership](#)

► [About IEICE Overseas Membership](#)

► For Applicants with IEEE ComSoc Membership

- [Sister Society Agreement](#) (PDF)
- [SSA Attachment](#) (PDF)
- [Dual Membership Agreement](#)
- [Application Form](#) (MS WORD)

► For Applicants with KICS Membership

- [Sister Society Agreement](#) (PDF)
- [Dual Membership Agreement](#)
- [Application Form](#)(MS WORD)

Communications Society Conference

► [The English Sessions](#) 

Publications

► [IEICE Transactions on Communications](#) ► [IEICE Online Journal](#)

► [Information for Authors](#) ► [Call for Papers](#)

► [Statistical Report](#) (PDF)

The Wayback Machine - https://web.archive.org/web/20040813011140/http://www.ieice.org:80/cs/

Last modified April 24, 2004



2004 INTERNATIONAL SYMPOSIUM ON ANTENNAS ANI

August 17-21, 2004, Sendai, JAPAN, Sendai International C

--- Empowering the World of Communications via Ant

Important Topics

- [Important dates](#)
- [What's news](#)
- [Final call for papers \(HTML\)](#)
- [Final call for papers \(PDF\)](#)
- [Young Scientist Travel Grant \(YSTG\)](#)
- [Call for Papers : Special Issue on ISAP '04 \(pdf\)](#)
- [Electronic Submission Page](#)
- [Registration Info.](#)
- [Time Table and Program \(pdf\)](#)

Other Topics

- [Greeting message](#)
- [Outline](#)
- [Objective](#)
- [Conference venue](#)
- [Travel information](#)
- [Workshops](#)
- [Exhibition information](#)
- [Social Programs](#)
- [Committees](#)
- [ISAP '05](#)
- [Links](#)
- [Contact us](#)

IMPORTANT NEWS AND DATES

- [Advance Program \(pdf\)](#) [2,201KB] was updated (June 10, 2004).
- **FYI: ABOUT REGISTRATION**

Online registration is available through [ISAP '04 Registration Desk](#) on and before August 2, 2004. After August 3, please make registration on site. Early registration is strongly recommended. Those who registered on or before July 1 and deposited the fee by the end of July will be notified the ID and password which enable them to access the pdf files of proceedings papers online after August 3.
- February, 2004 : Start of [online registration](#)
- [Paper upload via web browser](#) :
 - February 29, 2004 : Deadline for paper upload
 - March 14, 2004 : Deadline for receipt of printed copies of paper and copyright form by post
- Paper submission via storage medium:
 - February 29, 2004 : Deadline for all materials submission by post
- April 20, 2004 : Notification of acceptance (Date Changed)
- **July 1, 2004 : Early registration deadline** (please click on [ISAP '04 Registration Desk..](#))
- August 2, 2004 : Online registration deadline

INFORMATION FOR AUTHORS

We have sent e-mail of our final decision of acceptance to all corresponding authors. If you did not receive the e-mail yet, please contact [Dr. Takuji Arima \(t-arima@cc.tuat.ac.jp\)](mailto:t-arima@cc.tuat.ac.jp) immediately. (April 24, 2004)

WHAT'S NEW

- [Advance Program \(pdf\)](#) was uploaded. (June 9, 2004).
- [Time Table and Program \(pdf\)](#) was uploaded. (June 1, 2004).
- [INFORMATION of ISAP '05](#) was uploaded. (May 16, 2004).
- [INFORMATION FOR AUTHORS](#) was uploaded. (April 24, 2004).
- [WORKSHOPS](#) Abstract was uploaded. (April 6, 2004).
- [Electronic Submission Page](#) will be opened until 17:00 March 5, 2004 (JST). (March 2, 2004)
- [ISAP '04 Registration Desk](#) was opened and [deadline for exhibition entry](#) is extended until February 29, 2004. (February 8, 2004)
- [Social Programs](#) was uploaded. (December 26, 2003)
- [Workshops](#) was updated. (December 25, 2003)
- [Member List of Committees](#) was uploaded. (December 22, 2003)
- [Workshops](#) was uploaded. (December 20, 2003)
- [Announcement of Exhibition](#) was uploaded. (December 15, 2003)
- [Electronic Submission Page](#) was opened. (December 5, 2003)

IMPORTANT NEWS AND DATES

- [Advance Program \(pdf\)](#) [2,201KB] was updated (June 10, 2004).

■ FYI: ABOUT REGISTRATION

Online registration is available through [ISAP '04 Registration Desk](#) on and before August 2, 2004. After August 3, please make registration on site. Early registration is strongly recommended. Those who registered on or before July 1 and deposited the fee by the end of July will be notified the ID and password which enable them to access the pdf files of proceedings papers online after August 3.

- February, 2004 : Start of [online registration](#)
- [Paper upload via web browser](#) :
 - February 29, 2004 : Deadline for paper upload
 - March 14, 2004 : Deadline for receipt of printed copies of paper and copyright form by post
- Paper submission via storage medium:
 - February 29, 2004 : Deadline for all materials submission by post
- April 20, 2004 : Notification of acceptance (Date Changed)
- **July 1, 2004 : Early registration deadline** (please click on [ISAP '04 Registration Desk.](#))
- August 2, 2004 : Online registration deadline

IMPORTANT NEWS AND DATES

- [Advance Program \(pdf\)](#) [2,201KB] was updated (June 10, 2004).

■ FYI: ABOUT REGISTRATION

Online registration is available through [ISAP '04 Registration Desk](#) on and before August 2, 2004. After August 3, please make registration on site. Early registration is strongly recommended. Those who registered on or before July 1 and deposited the fee by the end of July will be notified the ID and password which enable them to access the pdf files of proceedings papers online after August 3.

- February, 2004 : Start of [online registration](#)
- [Paper upload via web browser](#) :
 - February 29, 2004 : Deadline for paper upload
 - March 14, 2004 : Deadline for receipt of printed copies of paper and copyright form by post
- Paper submission via storage medium:
 - February 29, 2004 : Deadline for all materials submission by post
- April 20, 2004 : Notification of acceptance (Date Changed)
- **July 1, 2004 : Early registration deadline** (please click on [ISAP '04 Registration Desk..](#))
- August 2, 2004 : Online registration deadline

INFORMATION FOR AUTHORS

We have sent e-mail of our final decision of acceptance to all corresponding authors. If you did not receive the e-mail yet, please contact [Dr. Takuji Arima \(t-arima@cc.tuat.ac.jp\)](mailto:t-arima@cc.tuat.ac.jp) immediately. (April 24, 2004)

WHAT'S NEW

- [Advance Program \(pdf\)](#) was uploaded. (June 9, 2004).
- [Time Table and Program \(pdf\)](#) was uploaded. (June 1, 2004).
- [INFORMATION OF ISAP '05](#) was uploaded. (May 16, 2004).
- [INFORMATION FOR AUTHORS](#) was uploaded. (April 24, 2004).
- [WORKSHOPS](#) Abstract was uploaded. (April 6, 2004).
- [Electronic Submission Page](#) will be opened until 17:00 March 5, 2004 (JST). (March 2, 2004)
- [ISAP '04 Registration Desk](#) was opened and [deadline for exhibition entry](#) is extended until February 29, 2004. (February 8, 2004)
- [Social Programs](#) was uploaded. (December 26, 2003)
- [Workshops](#) was updated. (December 25, 2003)
- [Member List of Committees](#) was uploaded. (December 22, 2003)
- [Workshops](#) was uploaded. (December 20, 2003)
- [Announcement of Exhibition](#) was uploaded. (December 15, 2003)
- [Electronic Submission Page](#) was opened. (December 5, 2003)
- Call for Papers : [Special Issue on 2004 International Symposium on Antennas and Propagation \(PDF\)](#) was uploaded. (October 21, 2003)
- Final Call for Papers ([HTML](#) & [PDF](#) version) and [Chairperson's Greeting Message](#) was uploaded. (September 10, 2003)
- The ISAP '04 home page (<http://www.ieice.org/cs/isap/2004>) was renewed. (March 5, 2003)

OUTLINE

The 2004 International Symposium on Antennas and Propagation (ISAP '04) will be held at Sendai International Center in Sendai, Japan, August 17 (Tuesday) through August 21 (Saturday), 2004. This Symposium, the ninth ISAP, is sponsored and organized by the Communications Society of the Institute of Electronics, Information and Communication Engineers (IEICE), and is held in cooperation with the International Union of Radio Science (URSI), the Antennas and Propagation Society of the Institute of Electrical and Electronics Engineers (IEEE/AP-S), the Antennas and Propagation Professional Network of the Institute of Electrical Engineers (IEE), the Chinese Institute of Electronics (CIE), and the Korea Electromagnetic Engineering Society (KEES).



OBJECTIVE

ISAP '04 is intended to provide an international forum for the exchange of information on the progress of research and development in antennas, propagation, electromagnetic wave theory, and related fields. It is also an important objective of this meeting to promote mutual interaction among participants.

YOUNG SCIENTIST TRAVEL GRANT (YSTG)

Young Scientist Travel Grant (YSTG) will be awarded by ISAP to several young overseas speakers who need financial support to present their papers. The applicants must be less than 35 years old as of August 21, 2004. The Steering Committee will select the winners and provide a part of traveling (depending on the distance from Japan and maximum about 100 thousand yen) and staying (about 50 thousand yen) expenses and registration fee at the symposium site. The YSTG Application Form can be downloaded from [the ISAP '04 Electronic Submission Web page](#) after filling in the Registration Form. Applicants to this support program should attach the signed YSTG Application Form to the normal submission, keeping submission deadline of YSTG papers, February 1, 2004.

REGISTRATION

Online registration can be made through [ISAP '04 Registration Desk](#) on and before August 2, 2004. After August 3, please make registration on site.

CONFERENCE VENUE

■ SENDAI INTERNATIONAL CENTER

A center for all types of meetings on an international scale. - Sendai International Center is open to citizens from around the world. Its facilities can be used for cultural exchange activities, international conferences and conventions, and meetings related to regional development.

More Information

- [Sendai International Center](#)

■ ABOUT SENDAI

Sendai is one of the largest cities in the northern part of the Honshu Island of Japan and has a mild climate, 400 years of tradition as well as a harmonious combination of beautiful nature and urban facilities. Among a lot of historical establishments in Sendai city, Tohoku University is well known as the birthplace of Yagi-Uda antenna.

More Information

- [Miyagi Prefecture Official Page](#)
- [Sendai City Official Page](#)
- [Tohoku University](#)

TRAVEL INFORMATION

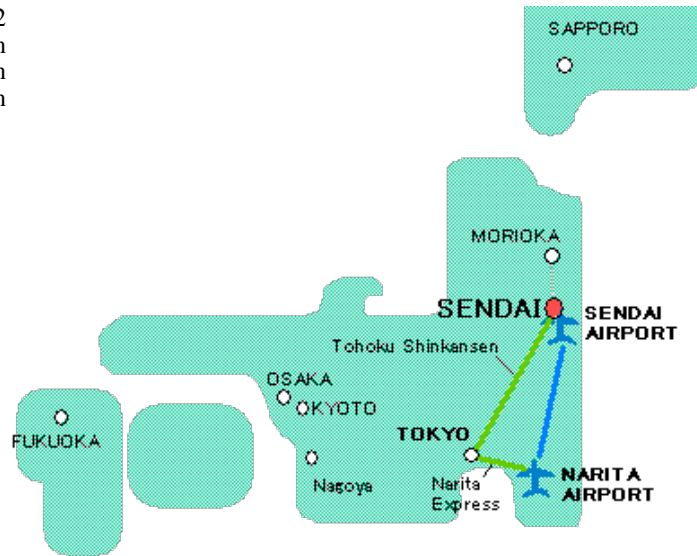
■ ACCESS TO SENDAI

Sendai International Airport has 6 regular international flights to and from locations which include Seoul, Beijing and Hawaii. The trip from



Narita Airport to Sendai takes around 4 1/2 hours by Narita Express (a shuttle train between the airport and Tokyo) and Tohoku Shinkansen (the bullet train). Domestic flights between Narita and Sendai airports are also available.

More Information



- [Sendai Airport \(SDJ\)](#)
- [Airport Limousine](#)
- [Narita International Airport \(NRT\)](#)
- [JR East](#)

■ VISA

Persons coming from certain countries must have a visa issued by a Japanese embassy or consul in their country. Please be aware that in some cases, it takes more than one month to obtain a visa. For details, please inquire at your nearest Japanese Embassy or Consular Office.

Useful web site: http://www.mofa.go.jp/j_info/visit/visa/index.html

- More Information : Please contact isap04-ecc@or.knt.co.jp.

WORKSHOPS

The following tutorial lectures will be held. (Alphabetical order of lecturers)

- Physics of the Electromagnetic Coupling Mechanisms in Physically Different Structures : A Case Study with Planar Antennas, Narrow Slit in a Thick Conducting Screen and Near-Field Scanning Optical Microscope

Lecturer: **Prof. Young Ki Cho**, Kyungpook National University, Korea

[ABSTRACT \(pdf\) \[17KB\]](#)

Date: August 17, 2004

Time: 14:00 to 17:00

- Smaller and Smarter - Architectures for Active Integrated Antenna

Lecturer: **Prof. Peter S. Hall**, University of Birmingham, UK

[ABSTRACT \(pdf\) \[35KB\]](#)

Date: August 17, 2004

Time: 14:00 to 17:00

- Wave Analysis, Characterization, and Applications of Metamaterials

Lecturer: **Prof. Akira Ishimaru**, University of Washington, USA

[ABSTRACT \(pdf\) \[50KB\]](#)

Date: August 17, 2004

Time: 14:00 to 17:00

- Characteristic Basis Function Method - A Novel Approach to Solving Large Problems Involving Microwave Antennas, Arrays and Radar Scatterers

Lecturer: **Prof. Raj Mittra**, Pennsylvania State University, USA

ABSTRACT (pdf) [156KB]

Date: August 17, 2004

Time: 14:00 to 17:00

EXHIBITION INFORMATION

Our symposium attendance is expected to be 500-600. We invite you to present your products and services in this symposium. If you are interested, please complete attached forms and send it to us before **February 29, 2004**. A signed form reserves your spaces and you will receive the acceptance notation and detailed instructions such as payment, equipments and so on.

<<Download>> Detail Annoucement of Exhibition : [PDF file\[20KB\]](#), [Word file\[39KB\]](#)

<<Download>> Exhibition Application Form: [PDF file\[17KB\]](#), [Word file\[101KB\]](#)

COMMITTEES

■ ORGANIZING COMMITTEE (OFFICERS)

Chairperson:	K. Sawaya (Tohoku Univ.)
Vice Chairpersons:	T. Masamura (NTT DoCoMo)
	T. Ihara (Kanto Gakuin Univ.)
	S. Makino (Mitsubishi Elec.)
Secretaries:	T. Uno (Tokyo Univ. of Agri. &Tech.)
Honorary Members:	T. Kitsuregawa (Mitsubishi Elec.)
	Y. Mushiake (Tohoku Univ.)
	F. Ikegami (Kyoto Univ.)
	T. Sekiguchi (Tokyo Inst. of Tech.)
	K. Nagai (Toshiba)
	S. Adachi (Tohoku Univ.)
	H. Yokoi
	N. Goto (Takushoku Univ.)
	M. Shinji (Tokai Univ.)
	K. Itoh (Tomakomai Nat. Col. of Tech.)
	T. Takano (JAXA)
	T. Kagoshima (Ibaraki Univ.)

■ STEERING COMMITTEE (OFFICERS)

Chairperson:	K. Sawaya (Tohoku Univ.)
Vice Chairpersons:	M. Ando (Tokyo Inst. of Tech.)
	K. Ito (Chiba Univ.)
	T. Hori (Univ. of Fukui)
Secretaries:	S. Makino (Mitsubishi Elec.)
	T. Uno (Tokyo Univ. of Agri. &Tech.)
	Q. Chen (Tohoku Univ.)
Technical Program:	Y. Karasawa (Univ. Electro-Comms.)
Young Scientist Travel Grant:	Y. Ogawa (Hokkaido Univ.)
Public Relations:	N. Kikuma (Nagoya Inst. of Tech.)
Publicity:	T. Taga (Kwansei Gakuin University)
Financial Affairs:	M. Tanaka (NICT)
Planning:	Y. Konishi (Mitsubishi Elec.)
Registration:	T. Manabe (NICT)
Local Arrangement:	M. Sato (Tohoku Univ.)
Social Program:	H. Shoki (Toshiba)

OVERSEAS CORRESPONDING MEMBERS

B. Arbesser-Rastburg (ESA-ESTEC, Netherlands)
 T. S. Bird (CSIRO Telecommunications & Industrial Physics, Australia)
 W. M. Boerner (Univ. Illinois at Chicago, USA)
 J. P. Daniel (ADVANTEN, France)
 H. J. Eom (KAIST, Korea)
 P. S. Hall (Univ. of Birmingham, UK)
 M. Krairiksh (King Mongkut's Institute of Technology Ladkrabang, Thailand)
 G. Kumar (I.I.T. Bombay, India)
 L. W. Li (Nat. Univ. of Singapore, Singapore)
 K. M. Luk (City Univ. of Hong Kong, Hong Kong)
 A. Nosich (Nat. Academy of Sciences of Ukraine, Ukraine)
 D. C. Park (Chungnam Nat. Univ., Korea)
 G. Pelosi (Univ. of Florence, Italy)
 L. Shafai (Univ. of Manitoba, Canada)
 W. R. Stone (IEEE Editor, USA)
 R. S. Thomae (Ilmenau Technical Univ., Germany)
 P. L. E. Uslenghi (Univ. of Illinois, USA)
 K. L. Wong (Nat. Sun Yat-Sen Univ., Taiwan)
 A. Yarovoy (Delft Univ. of Technology, Netherlands)
 W. X. Zhang (Southeast Univ., China)

INFORMATION : 2005 International Symposium on Antennas and Propagation (ISAP '05)

The 2005 International Symposium on Antennas and Propagation (ISAP '05) will be held at Seoul KyoYuk MunHwa HoeKwan (TEMF Hotel) in Seoul, Korea, August 3 through August 5, 2005 sponsored by the Korea Electromagnetic Engineering Society. For more information, please visit the symposium web site page.

<http://www.isap05.org/>

LINKS

- PREVIOUS CONFERENCES
 - [ISAP -i02](#)
 - [ISAP 2000](#)
 - RELATED CONFERENCES
 - [APMC 2002](#)
 - RELATED SITES
 - [IEICE Home Page](#)
 - [IEEE Antennas and Propagation Society](#)
 - [IEEE AP-S Japan Chapter \(in Japanese\)](#)
 - [IEEE Antennas and Propagation Professional Network](#)
 - WEB-SITE FOR IEICE TECHNICAL GROUPS
 - [Antennas and Propagation \(AP\) \(in Japanese\)](#)
 - [Radio Communication Systems \(RCS\) \(in Japanese\)](#)
 - [Electromagnetic Compatibility \(EMCJ\)](#)
 - [Electromagnetic Theory \(EMT\) \(in Japanese\)](#)
 - [Microwave Engineering \(MW\) \(in Japanese\)](#)
-

CONTACT US

Please have a contact to the following e-mail address:

isap-2004@mail.ieice.org (ISAP '04 Publicity Committee)

Appendix E

The Wayback Machine - https://web.archive.org/web/20040228170710/http://www.knt.co.jp:80/ec/2004/isap2004/



Advance Registration and Official Travel Agency

ISAP'04 Registration Desk
c/o Events & Conventions, Tokyo
Kinki Nippon Tourist Co., Ltd.
Kyodo Bldg. 6F
2-2 Kanda-Jimbocho, Chiyoda-ku,
Tokyo 101-0051, JAPAN



Tel: +81-3-3263-5581 Fax: +81-3-3263-5961
E-mail: isap04-ec@or.knt.co.jp

ON LINE REGISTRATION

To those who using internet browsers which do not properly express frames on the screen, click [here](#)



Registration is necessary to apply for other items (workshop, etc.)

☐ Registration Fee

	Regular	Student*	Accompanying person
On or before July 1, 2004	JPY 50,000	JPY 20,000	FREE
After July 2, 2004	JPY 55,000	JPY 25,000	

*Please send a copy of ID-card by FAX or e-mail.

The Registration Fees for Regular Participants and Students will include:

- Admission to all technical sessions and exhibition except for workshop.
- Proceedings (CD-ROM)
- Welcome Reception (August 17)
- Buffet Party (August 19)

Accompanying person can join the welcome reception

Additional Buffet party ticket for accompanying person :JPY 3,000

☐ Workshop Fee

August 17, 2004 14:00-17:00

	Title	Speaker	Regular	Student
Workshop (A)	Electromagnetic coupling mechanisms in planar antennas, transmission resonance through narrow slit in thick conducting screen, and near-field scanning microscope	Prof. Young Ki Cho, Kyungpook National University, Korea	JPY10,000	JPY5,000
Workshop (B)	Smaller and Smarter - Architectures for Active Integrated Antennas	Prof. Peter S. Hall, University of Birmingham, UK	JPY10,000	JPY5,000

Workshop (C)	Wave Analysis, Characterization, and Applications of Metamaterials	Prof. Akira Ishimaru, University of Washington, USA	JPY10,000	JPY5,000
Workshop (D)	Characteristic Basis Function Method --A Technique for Efficient Numerical Analysis of Large Scale EM Modeling and Simulation of Microwave Circuits, Antennas and Scattering Problems.	Prof. Raj Mittra, Pennsylvania State University, USA	JPY10,000	JPY5,000

☐ **Social Program**

	Event Name	Date	Fee
1	Experience of Japanese Culture for Women	August 18 13:30-16:00	FREE
2	Matsushima Tour	August 19 9:00-16:00	JPY 2,000
3	Technical Tour	August 20 9:0-16:00	JPY 2,000

☐ **Proceeding**

Additional CD-ROM (A CD-ROM is included in registration fee)	JPY 2,000
Hard copy (not included in registration fee)	JPY 4,000

If you would like a proceeding (CD-ROM) without attending symposium, please contact us: isap04-ecc@or.knt.co.jp. You will be required to pay the registration fee and delivery charge.



Kinki Nippon Tourist, Co., Ltd. has reserved rooms at hotels in Sendai for the symposium. Please make an on-line application for a reservation.

Code	Hotel Name	Room Rate			Deposit		Access
		Single	Twin (Single use)	Twin	Single	Twin /Twin (Single use)	
1	Sendai Excel Tokyu Hotel	10,000	14,000	16,000	20,000	20,000	5 min. by car from JR Sendai station
2	Sendai Washington Hotel	8,000	11,000	14,000	10,000	20,000	5 min. by car from JR Sendai station
3	Hotel Leoplace Sendai	6,000 8,000	10,000	12,000	10,000	20,000	5 min. by car from JR Sendai station
4	Hotel Metropolitan Sendai	12,000	15,000	18,000	20,000	20,000	In front on JR Sendai station
5	Chisan Hotel	7,000	11,000	11,000	10,000	20,000	5 min. walk from JR Sendai station

**For twin (single use), please choose "twin" for Room Type.
For twin (twin use), please choose "twin" for Room Type, and INPUT THE NAME OF YOUR SHARING PERSON for Room Mate below.**

Note:

- * The above room rates are per room per night, including service charge, and excluding tax and breakfast.
- * The above rates are subject to change.
- * The deposit will be deducted from your bill. Please settle the balance at the hotel cashier.



After receiving fees, a confirmation will be sent to you in July.



Payment should be made only in **Japanese Yen** by one of the following methods.

- 1) Credit Card (VISA, Master Card, American Express, Diners Club, or JCB only).

2) Bank Transfer to
Bank: Sumitomo Mitsui Banking Corp.
Chuo Branch
Account No: 1855352
Account Name: Kinki Nippon Tourist Co., Ltd



***Please send a copy of your bank receipt by fax or e-mail.**
*Please note that the bank charge for remittance must be borne by the participant.

Cancellation

In case of cancellation, a written notification should be sent directly to KNT to avoid any trouble.
The cancellation charges are:

Registration

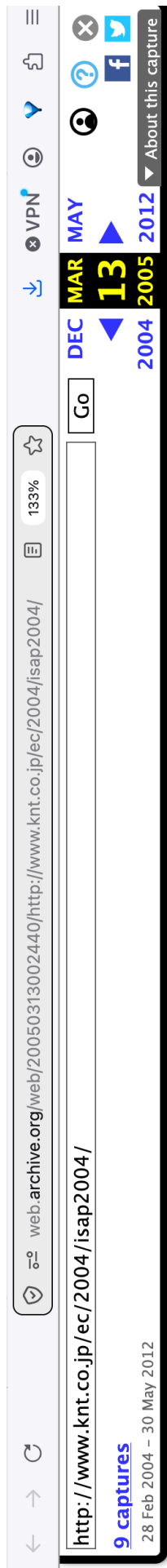
On or before August 2, 2004 ----- 25%
After August 3, 2004 ----- 100%

Hotel Accomodation

Up to 14 days prior to check-in date ----- No charge
13 - 7 days prior to check-in date ----- 10% of one day room charge
6 - 3 days prior to check-in date ----- 40% of one day room charge
Less than 3 days or no notice given ----- 100% of one day room charge



Refund will be made after the symposium period, after deducting bank and/or credit card service charges. If payment was made by credit card, refund will be made to the same credit card, and if by bank transfer, please inform us of your bank account.



Advance Registration and Official Travel Agency

ISAP'04 Registration Desk
c/o Events & Conventions, Tokyo
Kinki Nippon Tourist Co., Ltd.
Kyodo Bldg. 6F
2-2 Kanda-Jimbocho, Chiyoda-ku,
Tokyo 101-0051, JAPAN

Tel: +81-3-3263-5581 Fax: +81-3-3263-5961
E-mail: isap04-ecc@or.knt.co.jp

**Online Registration has been closed.
Please register on site.**

The Wayback Machine - https://web.archive.org/web/20050313002440/http://www.knt.co.jp:80/ec/2004/isap2004/



Advance Registration and Official Travel Agency

ISAP'04 Registration Desk
c/o Events & Conventions, Tokyo
Kinki Nippon Tourist Co., Ltd.
Kyodo Bldg. 6F
2-2 Kanda-Jimbocho, Chiyoda-ku,
Tokyo 101-0051, JAPAN

Tel: +81-3-3263-5581 Fax: +81-3-3263-5961

E-mail: isap04-ccc@or.knt.co.jp



Online Registration has been closed.
Please register on site.

[Hotel Access](#)

Online registration is available through <http://www.ieice.org/cs/isap/2004> on and before August 2, 2004. After August 3, please make registration on site.

Early registration is strongly recommended.

Those who registered on or before July 1 and deposited the fee by the end of July will be notified the ID and password which enable them to access the pdf files of proceedings papers online after August 3.



Registration is necessary to apply for other items (workshop, etc.)

☐ Registration Fee

	Regular	Student*	Accompanying person
On or before July 1, 2004	JPY 50,000	JPY 20,000	FREE
After July 2, 2004	JPY 55,000	JPY 25,000	

*Please send a copy of ID-card by FAX or e-mail.

The Registration Fees for Regular Participants and Students will include:

- Admission to all technical sessions and exhibition except for workshop.
- Proceedings (CD-ROM)

Those who made Registrations for Regular Participants are invited to Welcome Reception (August 17) and Buffet Party (August 19) free of charge.

Accompanying person can join the welcome reception.

Additional Buffet party ticket for accompanying person :JPY 3,000

- Welcome Reception (August 17)
- Buffet Party (August 19)

Accompanying person can join the welcome reception

Additional Buffet party ticket for accompanying person :JPY 3,000

☐ **Workshop Fee**

August 17,2004 14:00-17:00

	Title	Speaker	Regular	Student
Workshop (A)	Electromagnetic coupling mechanisms in planar antennas, transmission resonance through narrow slit in thick conducting screen, and near-field scanning microscope	Prof. Young Ki Cho, Kyungpook National University, Korea	JPY10,000	JPY5,000
Workshop (B)	Smaller and Smarter - Architectures for Active Integrated Antennas	Prof. Peter S. Hall, University of Birmingham, UK	JPY10,000	JPY5,000
Workshop (C)	Wave Analysis, Characterization, and Applications of Metamaterials	Prof. Akira Ishimaru, University of Washington, USA	JPY10,000	JPY5,000
Workshop (D)	Characteristic Basis Function Method --A Technique for Efficient Numerical Analysis of Large Scale EM Modeling and Simulation of Microwave Circuits, Antennas and Scattering Problems.	Prof. Raj Mittra, Pennsylvania State University, USA	JPY10,000	JPY5,000

☐ **Social Program**

	Event Name	Date	Fee
1	Experience of Japanese Culture for Women	August 18 13:30-16:00	FREE
2	Matsushima Tour	August 19 9:00-16:00	JPY 2,000
3	Technical Tour	August 20 9:00-16:00	JPY 2,000

☐ **Proceeding**

Additional CD-ROM (A CD-ROM is included in registration fee)	JPY 2,000
Hard copy (not included in registration fee)	JPY 4,000

If you would like a proceeding (CD-ROM) without attending symposium, please contact us: isap04-ecc@or.knt.co.jp . You will be required to pay the registration fee and delivery charge.



Kinki Nippon Tourist, Co., Ltd. (KNT) has reserved rooms at hotels in Sendai for the symposium. Please make an on-line application for a reservation.

Code	Hotel Name	Room Rate			Deposit		Access
		Single	Twin (Single use)	Twin	Single	Twin /Twin (Single use)	
1	Sendai Excel Tokyu Hotel	10,500	14,700	16,800	20,000	20,000	5 min. by car from JR Sendai station
2	Sendai Washington Hotel	7,400	7,900	12,800	10,000	20,000	5 min. by car from JR Sendai station
3	Hotel Leopalace Sendai	6,300 8,400	10,500	12,600	10,000	20,000	5 min. by car from JR Sendai station
4	Hotel Metropolitan Sendai	12,600	15,750	18,900	20,000	20,000	In front on JR Sendai station
5	Chisan Hotel	7,350	11,550	11,550	10,000	20,000	5 min. walk from JR Sendai station

For twin (single use), please choose "twin" for Room Type.

For twin (twin use), please choose "twin" for Room Type, and INPUT THE NAME OF YOUR

SHARING PERSON for Room Mate below.

=MAP=

Note:
* The above room rates are per room per night, including tax,service charge, and no meal.
* The above rates are subject to change.
* The deposit will be deducted from your bill. Please settle the balance at the hotel cashier.



After receiving fees, a confirmation will be sent to you in July.



Payment should be made only in **Japanese Yen** by one of the following methods.

- 1) Credit Card (VISA, Master Card, American Express, Diners Club, or JCB only).
- 2) Bank Transfer to
Bank: Sumitomo Mitsui Banking Corp.
Chuo Branch
Account No: 1855352
Account Name: Kinki Nippon Tourist Co., Ltd



*Please send a copy of your bank receipt by fax or e-mail.
*Please note that the bank charge for remittance must be borne by the participant.

Cancellation

In case of cancellation, a written notification should be sent directly to KNT to avoid any trouble.
The cancellation charges are:

Registration	
On or before August 2, 2004 -----	25%
After August 3, 2004 -----	100%
Hotel Accomodation	
Up to 14 days prior to check-in date -----	No charge
13 - 7 days prior to check-in date -----	10% of one day room charge
6 - 3 days prior to check-in date -----	40% of one day room charge
Less than 3 days or no notice given -----	100% of one day room charge



Refund will be made after the symposium period, after deducting bank and/or credit card service charges. If payment was made by credit card, refund will be made to the same credit card, and if by bank transfer, please inform us of your bank account.

Appendix F

Google Scholar

Articles

9 results (0.02 sec)

Search within citing articles

Pattern calibration free antenna by suppressing mutual coupling between elements

Reduction of mutual coupling between closely-packed antenna elements using defected ground structure

A compact 4-channel microstrip MIMO antenna with reduced mutual coupling

4×4 -Element Corporate-Feed Waveguide Slot Array Antenna With Cavities for the 120 GHz-Band

Improved MIMO antenna by mutual coupling suppression between elements

Any time

Since 2026

Since 2025

Since 2022

Custom range...

Citations

2023 2024 2025 2026

Sort by relevance

Sort by date

Create alert

SIGN IN

My profile

My library

Pattern calibration free antenna by suppressing mutual coupling between elements

FG Zhu, JD Xu, Q Xu - 2009 3rd IEEE International Symposium ...

2009 - [ieeexplore.ieee.org](#)

A simple ground plane structure that can reduce mutual coupling between closely-packed antenna elements is proposed. The structure consists of a dumb-bell-like pattern etched in a ...

[Save](#) [Cite](#) [Cited by 257](#) [Related articles](#) [All 8 versions](#)

A compact 4-channel microstrip MIMO antenna with reduced mutual coupling

CK Ghosh - AEU-International Journal of Electronics and ...

2016 - [Elsevier](#)

A compact 4-channel multiple-input-multiple-output (MIMO) microstrip antenna integrated with inverted U-shaped microstrip resonators and line resonators is presented at 5.25 GHz ...

[Save](#) [Cite](#) [Cited by 71](#) [Related articles](#) [All 2 versions](#)

4×4 -Element Corporate-Feed Waveguide Slot Array Antenna With Cavities for the 120 GHz-Band

D Kim, J Hirokawa, M Ando...

2013 - [ieeexplore.ieee.org](#)

We propose a 4x 4-element corporate-feed waveguide slot array antenna with outer cavities for the 120 GHz band. To adjust the mutual coupling effects in a small sized array antenna ...

[Save](#) [Cite](#) [Cited by 42](#) [Related articles](#) [All 8 versions](#)

Improved MIMO antenna by mutual coupling suppression between elements

KS Min, DJ Kim, YM Moon - The European Conference on ...

2005 - [ieeexplore.ieee.org](#)

This paper describes a novel method for suppressing mutual coupling between antenna elements for application in MIMO antenna design. To suppress mutual coupling, several ...

[Save](#) [Cite](#) [Cited by 71](#) [Related articles](#) [All 3 versions](#)

Resmed Corp. - Ex. 1029

Page 87

☆ Save Cite Cited by 11 Related articles All 3 versions

Design and performances of multiple-input multiple-output antennas for wireless communications with left-handed metamaterials

B Aouadi, JB Tahar - 2012 Sixth International Conference on ..., 2012 - ieeexplore.ieee.org

In this paper, a simple kind of E-shaped patch antenna is proposed for Multiple-Input Multiple-Output (MIMO) applications in cognitive radio at about 15 GHz. The strong coupling ...

☆ Save Cite Cited by 2 Related articles All 4 versions

평면 배열 안테나의 소자간 상호 결합 억압 설계

만경식, 김동진, 박철근, 문영민, 김영일 - 한국전자파학회논문지, 2005 - dbpia.co.kr
본 논문은 평면 배열 안테나의 성능 향상을 위한 안테나 소자간의 새로운 상호 결합 억제 방법을 제안하고 있다. 연구에 사용된 IEEE 802.11 a (5.15~ 5.35GHz, 5.75~ 5.85GHz) 를 만족하는 두 ...

☆ Save Cite Cited by 4 Related articles All 4 versions

[CITATION] A Design for Mutual Coupling Suppression between Elements in Planar Array Antenna

M Kyeong-Sik, M Young-Min - The Journal of ..., 2005 - The Korean Institute of ...

☆ Save Cite Related articles

[CITATION] DESIGN FOR NOVEL MIMO ANTENNA WITH LOW MUTUAL COUPLING

KS Min, DJ Kim, YM Moon - IEICE ..., 2005 - The Institute of Electronics ...

☆ Save Cite Related articles All 3 versions

[CITATION] Design for novel MIMO antenna with low mutual coupling

KS Min, DJ Kim - 한국통신학회 학술대회논문집, 2005 - dbpia.co.kr

This paper describes a novel method suppressing mutual coupling between antenna elements for the application of a MIMO antenna design. To suppress mutual coupling ...

☆ Save Cite Cited by 2 Related articles

Appendix G

Design for Novel MIMO Antenna with Low Mutual Coupling

Kyeong-Sik Min* and Dong-Jin Kim*

*Department of Radio Sciences and Engineering,

College of Sciences and Engineering, Korea Maritime University,

#1 Dongsam-Dong, Youngdo-Ku, Busan, 606-791, Korea

E-mail : ksmi@mail.hhu.ac.kr and Tel : +82-51-410-4425

ABSTRACT

This paper describes a novel method suppressing mutual coupling between antenna elements for the application of a MIMO antenna design. To suppress mutual coupling, several parasitic elements were employed in the proposed MIMO array antennas. Due to an effect of these parasitic elements, remarkably suppressed mutual coupling is achieved. While the mutual coupling of conventional MIMO antenna is observed approximately -20 dB in half lambda array, the MIMO antenna using the novel method proposed in this paper shows the mutual coupling less than -30 dB in half lambda array at center frequency. The proposed method shows that the improvement of mutual coupling is at least 10dB more than that of conventional MIMO antenna.

Keywords: MIMO antennas, mutual coupling, parasitic elements.

1. INTRODUCTION

In recent years, there have been many studies on MIMO antenna system for the application of mobile communication or W-LAN system, etc.; because the MIMO antenna system is a suitable candidate for the 4th generation mobile communication system requiring a high speed, a high quality, and a large amount of data transmission. In spite of these advantages, the MIMO antenna system has the serious problem, signal interference, caused by strong mutual coupling between antenna elements, which is difficult to solve using a baseband algorithm and a signal processing technique[1]. Recently, many studies have been devoted to suppress the mutual coupling, being mostly focused on software approaches like a baseband algorithm or DSP, to resolve this problem. However, by using a software approach, there is a difficulty of its embodiment. As an efficient way to resolve this

some approached as a matter of hardware including antenna system; for example, antenna with boxy metallic wall[2], antenna using absorber[3], etc. They used the 3-dimension structures, which are big and complex, to suppress the mutual coupling. In this paper, we investigate the multi-channel array antennas suppressed mutual coupling by using parasitic elements in 2-dimension structure, and provide MIMO array antenna design having low mutual coupling with consideration of the independent channel operation.

2. A CONVENTION 4-CHANNEL ANTENNA DESIGN FOR MIMO ANTENNA SYSTEM

Fig. 1 shows a conventional 4-channel MIMO antenna which is consisted of 4 patch antenna elements[4]. Each antenna element is designed for W-LAN band(IEEE 802.11a). These antenna elements are arrayed by half wave length interval for both of latitude

and longitude direction, respectively. Fig. 2 and 3 show the calculated S-parameters and the radiation patterns of the conventional 4-channel MIMO antenna, respectively. As shown in Fig. 2, each antenna element is satisfied the W-LAN band at VSWR 2 and the mutual coupling between each element is about -20 dB at 5.15 GHz ~ 5.35 GHz band.

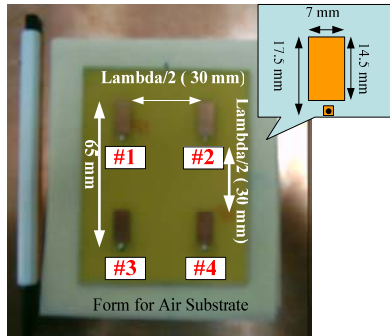


Fig. 1 A Conventional 4-channel MIMO antenna

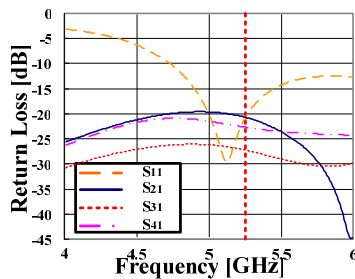


Fig. 2 Calculated S-parameters of a conventional

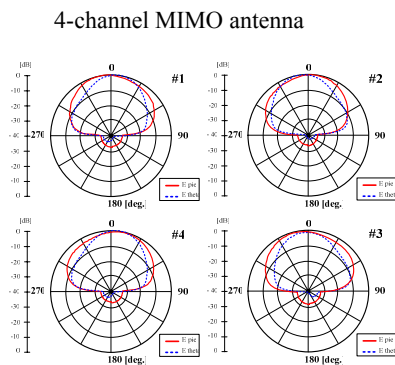
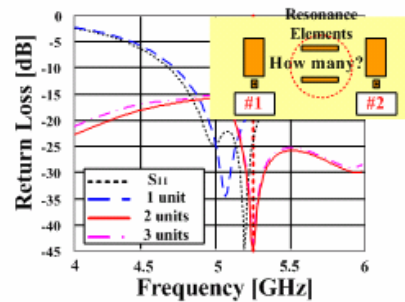


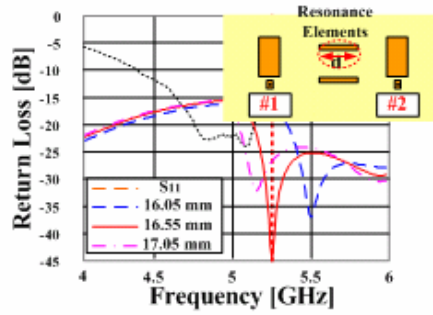
Fig. 3 Calculated radiation patterns of a conventional 4-channel MIMO antenna

3. NOVEL DESIGN FOR LOW MUTUAL COUPLING

To suppress mutual coupling between elements, it is considered the parasitic elements which are composed of microstrip lines. The parasitic elements are used as resonant elements. In horizontal direction, two parasitic microstrip lines are employed. As shown in Fig. 4, the mutual coupling is changed according to the number of parasitic elements (Fig. 4 (a)) and the length of parasitic elements (Fig. 4 (b)). In Fig. 4 (a), the mutual coupling values of 2 and 3 parasitic elements are lower than that of one parasitic element. Therefore, 2 parasitic elements are considered to suppress the mutual coupling in this design. When two parasitic elements which have length of 16.55 mm are located on between two antenna elements, the mutual coupling between two antenna elements is suppressed about -40 dB below at 5.25 GHz band. Fig. 4 (b) shows the variation of parasitic element length. By changing of its length, frequency is also shifted and the optimum value is also changed. Therefore, the length of 16.55 mm is adopted in design. In case of vertical direction, a parasitic element with same direction is employed to suppress mutual coupling forward vertical direction.

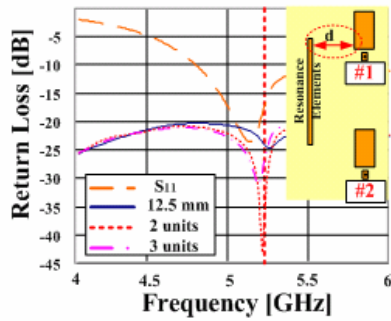


(a) Change of the parasitic elements number

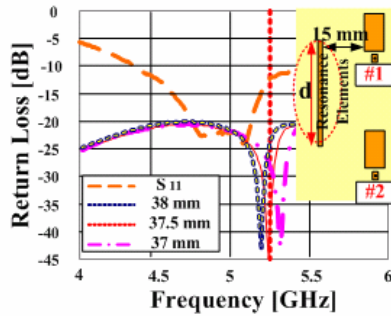


(b) Change of the parasitic elements length

Fig. 4 Variation of S-parameters according to the number and the length of parasitic elements



(a) The change of the parasitic elements offset



(b) The change of the parasitic elements length

Fig. 5 Variation of S-parameters according to length of parasitic elements

As shown in Fig. 5, it shows similar phenomenon comparing with the horizontal direction. Thus, it is able to control the mutual coupling using one parasitic element. Fig. 5 (a) and (b) show variation of S-parameters according to offset and length of parasitic elements. The mutual coupling between antenna elements is changed according to offset and length of parasitic element, respectively. When a parasitic element which has length of 37.5 mm and offset of 15

mm is placed between two antenna elements, the mutual coupling is suppressed about -40 dB below at 5.25 GHz band. Fig. 6 shows the current distributions of the proposed antenna with parasitic elements. As shown in Fig. 6 (a), when only #1 element is fed, currents flow through antenna and parasitic elements, and] in Fig. 6 (b), when #1 and #2 elements are fed simultaneously, the interference currents are cancelled by the parasitic elements located on the horizontal direction. The currents distribution of #1 and #2 elements is realized as same pattern each other. Because surface wave between #1 and #2 antenna elements is cancelled by the horizontally located parasitic elements, the mutual coupling between two elements is strongly suppressed. As shown in Fig. 6 (c) and (d), the current characteristics of vertical array show the similar phenomenon such as the result of Fig.6 (a) and (b) for the vertically located parasitic elements.

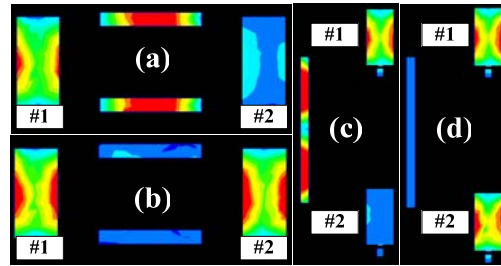


Fig. 6 Current distribution of antennas

These parasitic elements contribute the improvement of the mutual coupling and the antenna gain. In Fig. 7, the calculated antenna gain of a proposed antenna with parasitic element shows about 0.2 dBi improvement comparing with a conventional type.

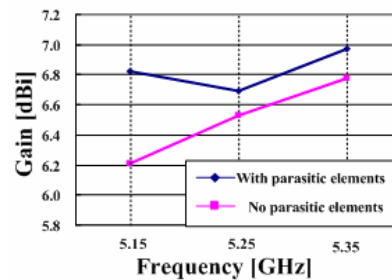


Fig. 7 Antenna gain of the proposed 4-channel MIMO antenna

Fig. 8 shows the fabricated 4-channel MIMO antenna which is suppressed mutual coupling using 4 parasitic elements. Fig. 9 and 10 show the measured S-parameters and the measured radiation patterns of fabricated 4-channel MIMO antenna, respectively. They show reasonable agreement comparing with the prediction.

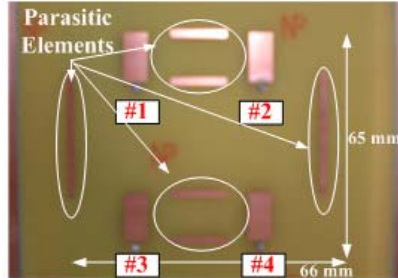


Fig. 8 Fabricated proposed 4-channel MIMO antenna

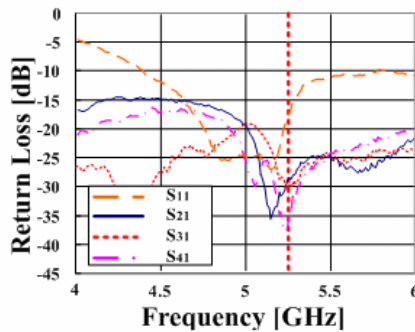


Fig. 9 Measured S-parameters of proposed 4-channel MIMO antenna

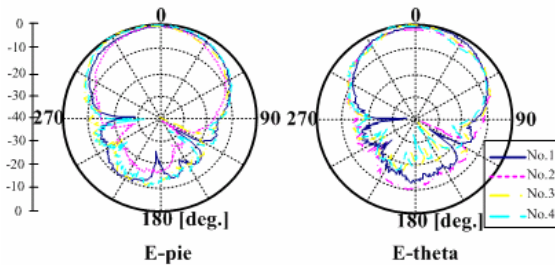


Fig. 10 Measured radiation patterns of the proposed 4-channel MIMO antenna

3. CONCLUSION

This paper presents a strong possibility of the mutual coupling suppression between antenna elements using parasitic elements to realize an independent

channel operation for the MIMO antenna system. The conventional multi-channel MIMO antennas show about -20 dB mutual coupling in half lambda array. However the mutual coupling of the novel multi-channel MIMO antennas is remarkably improved above 10 dB comparing with conventional types. Since most of the previous researches have been used 3-dimension structure for the mutual coupling suppression, they have complex structure. However, the novel design proposed in this paper shows only 2-dimension structure. The proposed novel method for mutual coupling suppression will be able to apply many application fields for the MIMO system and the array antenna system.

Acknowledgement

This research was supported by the Program for the Training of Graduate Students in Regional Innovation which was conducted by the Ministry of Commerce, Industry and Energy of the Korea Government.

References

- [1]Sung Jin Kim, Yong Suk Lee, Ho Jin Kim, Hyeon Woo Lee, "Technical Review for 3GPP Downlink Multiple Antenna Conceptes." Telecommunication Review, vol. 12, NO. 2 pp. 152-168, Mar. 2002.
- [2]Yuki INOUE, Hirotake SUMI, Hiroyuki ARAI, "Pattern Calibration Free Antenna by Suppressing Mutual Coupling Between Elements." Proceeding of ISAP 2004
- [3]Tae Yoon Lee, Nak Sun Sung, Ji Hun Bae, Chul Sik Pyo, Jong Suk Chae, "Planar Microstrip Array Antenna", Korea Patent, Registration No. 10-2002-0074683, Nov. 2002.
- [4]Kyeong Sik Min, Dong Jin Kim, "Patch Array Antennas for Home Network System", KJJC, Nov. 2004.

Appendix H

All

키워드, 저널, 학회, 저자 등을 입력해 주세요.

목차·참고문헌
완성까지

Library Notice

Advanced Search

Subject BEST Magazine Journal

AI agent

AI idea

AI reader

Citeasy

 Community Institutional Access Log in / Register Help KOR

Design for Novel MIMO Antenna with Low Mutual Coupling

Ask AI

Type

Proceeding

Author

Kyeong-Sik Min Dong-Jin Kim

Journal

Korea Institute Of Communication Sciences Proceedings of Symposium of the Korean Institute of communications and Information Sciences 한국통신학회 종합 학술 발표회 논문집 (하계) 2005

Published

2005.6

Pages

49 - 52 (4page)

Usage

19

Cite

View PDF

AI viewer



2005 하계 종합학술발표회 논문집

Research Topic

본 연구는 MIMO 안테나 설계에서 안테나 요소 간의 상호 결합을 억제하는 새로운 방법을 제안한다.

Research Backgrou

MIMO 안테나 시스템; 4세대 모바일 통신 시-결합으로 인해 신호 간



AI viewer

Design for Novel MIMO Antenna with Low Mutal Coupling

Ask AI

Cite

View PDF

AI viewer

Abstract · Keywords

AI-Analyzed Research Highlights

Contents

References

Recommendations

Related Authors

Frequently Viewed Together

Abstract · Keywords

No content found

Update Details

AI-Analyzed Research Highlights

What is mutual coupling as defined in this paper?

Mutual coupling refers to the signal interference phenomenon that occurs between antenna elements in a MIMO antenna system. This is a critical issue for MIMO antenna systems suitable for fourth-generation (4G) mobile communication systems that require high-speed, high-quality data transmission,

마지막
과제
A+ 받는
방법

한이 남에게 활용된 자료

문의하기

and it is difficult to resolve using baseband algorithms or signal processing techniques alone.

How is mutual coupling in MIMO antennas suppressed using parasitic elements?

The research findings indicate that mutual coupling can be effectively suppressed by placing parasitic elements between the antenna elements. The parasitic elements act as resonant elements to cancel surface waves between the antenna elements, thereby demonstrating a mutual coupling suppression effect improved by more than 10 dB compared to conventional MIMO antennas. This can be implemented using a two-dimensional structure instead of a complex three-dimensional structure.

Last updated: 2026. 04. 28

See this paper's research methods in AI Viewer

Contents

- ABSTRACT
1. INTRODUCTION
2. A CONVENTION 4-CHANNEL ANTENNADESIGN FOR MIMO ANTENNA SYSTEM
3. NOVEL DESIGN FOR LOW MUTUALCOUPLING
3. CONCLUSION
- References

References

No content found

Request References

Add References

Recommendations

It is an article recommended by DBpia according to the article similarity. Check out the related articles!

Miniaturized MIMO Antenna with Low Inter-radiator Transmittance and Band Rejection Features Muhammad Irshad Khan, Muhammad Irfan Khattak, Mauth Al-Hasan Journal of Electromagnetic Engineering And Science 2021.09	Cross-Polarization Beamforming MIMO Array Antenna for Open RAN Gwangjae Jang, Yujin Lim, Yeonchul Sung, Hyeonjin Lee 대한전자공학회 학술대회 2023.11	A Compact MIMO Antenna Design Using the Wideband Ground-Radiation Technique for 5G Terminals Rui Li, Longyue Qu, Hyeongdong Kim Journal of Electromagnetic Engineering And Science 2024.01	Capacity Bounds for MIMO Interference Channels Vien Van Mai, Youngmin Jeong, Hyundong Shin Proceedings of Symposium of th Korean Institute of communicati and Information Sciences 2015.06
--	--	---	---

Related Authors



Kyeong-Sik Min

Affiliation

FieldsEngineering > Electrical and Electronic Engineering > Information and Communication EngineeringEngineering > Electrical and Electronic Engineering > Electrical Engineering

Articles 5Usage 238



Dong-Jin Kim

Affiliation

FieldsEngineering > Electrical and Electronic Engineering > Information and Communication Engineering

Articles 1Usage 19

Frequently Viewed Together

- Optimum Turbo Equalization Method based on Layered Space Time Codes in Underwater Communications
Tae-hun Kim, Ji-won JungJournal of the Korea Institute of Information and Communication Engineering2014.05
- Performance Evaluation of CAZAC Sequence Based Channel Estimation for MIMO HR-WPAN System
Jee-Hoon Kim, Myung-Sun Baek, Hyoung-Kyu SongITC-CSCC :International Technical Conference on Circuits Systems, Computers and Communications2007.07
- An Adaptive K-best Algorithm Based on Path Metric Comparison for MIMO Systems
Bong-seok Kim, Kwonhue ChoiThe Journal of Korean Institute of Communications and Information Sciences2007.11

Recently viewed articles (1)

Want to see your recent items again?
Log in to view all 1 papers.

Log in to view more



댓글만 달아도 커피 수혈! 매주 찾아오는 '이주의 질문'

지금 내 채산 속지친 심편 상태인가?



UCI(KEPA) : I410-ECN-0101-2014-560-003637010

About DBpia

Career

Terms of Use

Privacy Policy

App download

Family site

All

Unauthorized crawling or reproduction of content may result in legal liability under copyright and unfair competition laws.

Nurimedia Co. Ltd CEO: Choi, Soon Il
Business Registration No.: 816-81-00840 [business information](#)
22-16, Yanghwa-ro 19-gil, Mapo-gu, Seoul, Republic of Korea
Copyright (c) 1997-2026 NURIMEDIA. ALL RIGHTS RESERVED.



Help

FAQ 1:1 Inquiries Institution Inquiry
Mon-Fri 9am-6pm
(Closed on weekends and holidays)

Check the Notice >



Appendix I

References(4) *help



Pattern Calibration Free Antenna by Suppressing Mutual Coupling Between Elements

INOUE Yuki Proceeding of ISAP 2004 2004

“ 1 Citations



Patch Array Antennas for Home Network System

MIN Kyeong Sik KJJC, Nov. 2004 2004

“ 1 Citations



Technical Review for 3GPP Downlink Multiple Antenna Concepts

KIM Sung Jin Telecommunication Review 12 (2), 152-168, 2002

“ 1 Citations



Planar Microstrip Array Antenna

LEE Tae Yoon Korea Patent, Registration No. 10-2002-0074683 2002

“ 1 Citations

ZN33(科学技術--電気工学・
電気機械工業--電子工学・電
気通信)

Data Source :
NDL Search
CiNii Articles

Export

Export to RefWorks
Export to EndNote
Export to Mendeley
Export as RDF
Show Refer/BibX
Show RIS
Show BibTeX
Show TSV
Show CSV
Show JSON-LD

Report a problem

Edit article detail
other





About CiNii

About CiNii
CiNii Research Incorporated Databases
Terms of use & Privacy Policy
[Handling of personal information](#)
Contact
NII Home



Copyright © National Institute of Informatics

Help

CiNii Research
CiNii Books
Metadata and API

News

Updated
RSS
Twitter

NII Scholarly Services

KAKEN
IRDB
NII-REO