

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

THE BOEING COMPANY
Petitioner,

v.

THE REGENTS OF THE UNIVERSITY OF CALIFORNIA
Patent Owner.

Case No. IPR2024-00761
U.S. Patent No. 7,487,684

**PETITIONER'S OPPOSITION TO
PATENT OWNER'S MOTION TO EXCLUDE**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	PROCEDURAL HISTORY	1
III.	ARGUMENT.....	2
A.	There is No Dispute the Petition Advances Arguments Under § 102(a).....	2
B.	Exhibits 1041-1051 and Petitioner’s Associated Arguments Are Not Improper New Evidence/Arguments.....	5
C.	Exhibits 1041-1051 are Relevant to Public Availability of Wang-Dissertation.....	6
IV.	CONCLUSION.....	8

TABLE OF AUTHORITIES

	Page(s)
CASES	
<i>Ariosa Diagnostics v. Verinata Health, Inc.</i> , 805 F.3d 1359 (Fed. Cir. 2015)	5
<i>B/E Aerospace, Inc. v. C & D Zodiac, Inc.</i> , 709 F. App'x 687 (Fed. Cir. 2017)	4
<i>Genzyme Therapeutic Prod. Ltd. P'ship v. Biomarin Pharm. Inc.</i> , 825 F.3d 1360 (Fed. Cir. 2016)	3, 4
<i>In re Hall</i> , 781 F.2d 897 (Fed. Cir. 1986)	4
<i>Lynk Labs, Inc. v. Samsung Elecs. Co.</i> , 125 F.4th 1120 (Fed. Cir. 2025)	4
<i>OddzOn Prods., Inc. v. Just Toys, Inc.</i> , 122 F.3d 1396 (Fed. Cir. 1997)	6
<i>Rembrandt Diagnostics, LP v. Alere, Inc.</i> , 76 F.4th 1376 (Fed. Cir. 2023)	5
STATUTES	
35 U.S.C. § 102(a)	passim
§102(b)	1, 2, 3, 4
OTHER AUTHORITIES	
37 C.F.R. § 42.20(c)	8

LIST OF EXHIBITS

Exhibit No.	Description	Previously Submitted
1001	U.S. Patent 7,487,684 (“’684 Patent”)	X
1002	Prosecution History of U.S. Patent 7,487,684 (“’684 File History”)	X
1003	Declaration of Junlan Wang, Ph.D. (“Wang Declaration”)	X
1004	Curriculum Vitae of Junlan Wang, Ph.D.	X
1005	Junlan Wang, 2002 Ph.D. Dissertation at University of Illinois at Urbana-Champaign, “Thin-film Adhesion Measurements by Laser-Induced Stress Wave” (“Wang-Dissertation” or “Wang”)	X
1006	Declaration of Ingrid Hseih-Yee (“Hseih-Yee Declaration”)	X
1007	Anderholm, N., 1970, “Laser-Generated Stress Waves,” Appl. Phys. Lett., 16(3), pp. 113-115	X
1008	Fox, J.A., and Barr, D.N., 1973, “Laser-Induced Shock Effects in Plexiglas and 6061-T6 Aluminum,” Appl. Phys. Lett., 22(11), pp. 594-596	X
1009	Yang, L., 1974, “Stress Waves Generated in Thin Metallic Films by a Q-Switched Ruby Laser,” J. Appl. Phys., 45(6), pp. 2601-2608	X
1010	Stephens, A.W., and Vossen, J.L., 1976, “Abstract: Measurement of Interfacial Bond Strength by Laser Spallation,” J. Vac. Sci. Technol., 13(1), pp. 38-39	X
1011	Gupta, V., Argon, A., Parks, D., and Cornie, J., 1992, “Measurement of Interface Strength by a Laser Spallation Technique,” J. Mech. Phys. Solids, 40(1), pp. 141-180 (“Gupta-1992”)	X
1012	J. Yuan and V. Gupta, “Measurement of interface strength by the modified laser spallation experiment. I-IL,” Journal of Applied Physics, vol. 74, no. 4, pp. 2388-2404, 1993	X
1013	J. Yuan, V. Gupta, A. Pronin, “Measurement of interface strength by the modified laser spallation	X

Exhibit No.	Description	Previously Submitted
	experiment. III,” Journal of Applied Physics, vol. 74, no. 4, pp. 2405-2410, 1993 (“Gupta-1993”)	
1014	Wang, J. , Sottos, N. R. , and Weaver, R. L., 2000, “Laser Induced Thin Film Spallation,” TAM Technical Reports, University of Illinois Urbana-Champaign	X
1015	Wang, J., Weaver, R.L., 2001, “Abstract: Laser-induced weak shock in fused silica for destructive testing of thin films” J. Acoust. Soc. Am. 109, 2308 (2001)	X
1016	Wang, J., Weaver, R. L., and Sottos, N. R., 2002, “A Parametric Study of Laser Induced Thin Film Spallation,” Exp. Mech., 42(1), pp. 74-83 (“Wang-2002”)	X
1017	Wang, J., Sottos, N. R., and Weaver, R.L., 2003, “Thin Film Adhesion Measurement by Laser Induced Stress Waves,” J. Mech. Phys. Solids	X
1018	Wang, J., Weaver, R. L., and Sottos, N. R., 2003, “Laser-Induced Decompression Shock Development in Fused Silica,” J. Appl. Phys., 93(12), pp. 9529–9536	X
1019	Gupta V, Kireev V, Tian J, Yoshida H, Akahoshi H, 2003, “Glass-modified stress waves for adhesion measurement of ultra-thin films for device applications,” J. Mech. Phys. Solids 51(8):1395-1412	X
1020	Fairand, B.P., Clauer, A.H., 1977, “Use of Laser Generated Shocks to Improve the Properties of Metals and Alloys,” Indus. App. Of High Power Laser Tech., Vol. 86,	X
1021	Barker, L.M., Hollenbach, R.E, 1970, “Shock wave studies of PMMA, fused silica and sapphire,” J. Appl. Phys, 41, pp. 4208-4226	X
1022	December 13, 2023 Defendant’s Motion to Dismiss Plaintiff’s Second Amended Complaint Under Federal Rules of Civil Procedure 12(b)(2), 12(b)(3), and 12(b)(2), Dkt. 78, <i>Laser Spallation Technologies, LLC</i>	X

Exhibit No.	Description	Previously Submitted
	<i>v. The Boeing Company</i> , Case No. 2:23-cv-02294 (C.D. Cal.)	
1023	February 1, 2024 Order Denying Defendants’ Motion to Dismiss, Dkt. 86, <i>Laser Spallation Technologies, LLC v. The Boeing Company</i> , Case No. 2:23-cv-02294 (C.D. Cal.)	X
1024	February 7, 2024 Order Setting Deadlines Re Jurisdictional Discovery, Dkt. 90, <i>Laser Spallation Technologies, LLC v. The Boeing Company</i> , Case No. 2:23-cv-02294 (C.D. Cal.)	X
1025	February 27, 2024 Order Conditionally Granting Motion to Compel Gupta Deposition [ECF 91] and Denying Application to Expedite Hearing on Motion to Compel [ECF 92], Dkt, 93, <i>Laser Spallation Technologies, LLC v. The Boeing Company</i> , Case No. 2:23-cv-02294 (C.D. Cal.)	X
1026	February 1, 2024 Order Re: Civil Jury/Court Trial, Dkt. 89, <i>Laser Spallation Technologies, LLC v. The Boeing Company</i> , Case No. 2:23-cv-02294 (C.D. Cal.)	X
1027	Provisional Application No. 60/550,803	X
1028	Alexander Pronin, 1995 Ph.D. Dissertation at Dartmouth College, “Applications of Laser Generated Stress Pulses for Materials Characterization”	X
1029	Gupta, V., & Argon, A. S., 1991, “Measurement of strength of thin film interfaces by laser spallation experiment,” <i>Inelastic Deformation of Composite Materials: IUTAM Symposium, Troy, New York, May 29–June 1, 1990</i> (pp. 51-74). New York, NY: Springer New York	X
1030	Conference Program Book, ASME International Mechanical Engineering Congress and Exposition, November 17-22, 2002, New Orleans, Louisiana	X
1031	Uerara, K., Sakurai, M., 2002, “Bonding strength of adhesives and surface roughness of joined parts,” <i>J. Materials Processing Tech.</i> , 127, 178-181	X

Exhibit No.	Description	Previously Submitted
1032	Yu, A., Gupta, V, 1998, “Measurement of In Situ Fiber/Matrix Interface Strength in Graphite/Epoxy Composites,” <i>Composites Science and Technology</i> 58,1827-1837	X
1033	November 2, 2023 Declaration of Vijay Gupta in Support of Plaintiff’s Second Amended Complaint, Dkt. 75, <i>Laser Spallation Technologies, LLC v. The Boeing Company</i> , Case No. 2:23-cv-02294 (C.D. Cal.)	X
1034	U.S. Patent No. 5,438,402	X
1035	March 15, 2024 Declaration of LaTonya Morris, ProQuest	X
1036	February 7, 2024 Declaration of Carl Mageski, ProQuest	X
1037	December 18, 2024 Declaration of LaTonya Morris, ProQuest	X
1038(1)	December 18, 2024 Declaration of LaTonya Morris, ProQuest (Redlined)	X
1038(2)	Supp. Declaration of Junlan Wang, Ph.D. (“Supp. Wang Decl.”)	X
1039	Deposition Transcript of Dr. Vijay Gupta taken on April 11, 2025	X
1040	Deposition Transcript of Dr. Vijay Gupta taken on March 12, 2024	X
1041	Supp. Declaration of Ingrid Hseih-Yee (“Supp. Hseih-Yee Decl.”)	X
1042	UIUC bibliographic and MARC record for the Wang dissertation	X
1043	OCLC FirstSearch record for the Wang dissertation	X
1044	“ProQuest Digital Dissertations” archived by Internet Archive on August 16, 2000.	X
1045	“About ProQuest Digital Dissertations” archived by Internet Archive on August 15, 2000, and on April 16, 2003.	X

Exhibit No.	Description	Previously Submitted
1046	Steps for accessing ProQuest metadata record, previewing 24 pages of a dissertation, and viewing the full dissertation	X
1047	“Online Dissertation Services” archived by Internet Archive on February 10, 2003.	X
1048	Copyright registration record for v. 63, no. 11 of <i>Dissertation Abstracts International</i> that contains the index record for the Wang dissertation, obtained from the public catalog of the US Copyright Registration Office	X
1049	Copy of the front matter of v. 63, no. 11 of <i>Dissertation Abstracts International</i> and the index record for the Wang dissertation, obtained from the Library of Congress	X
1050	Comparison file of the original abstract and the abstract in the ProQuest metadata record	X
1051	Library system of the University of Illinois at Urbana-Champaign archived by Internet Archive on February 11, 2003.	X
1052	[RESERVED]	X
1053	Declaration of Dr. Vijay Gupta from 8/11/2023	X
1054	Declaration of Dr. Vijay Gupta from 11/2/2023	X
1055	Declaration of Dr. Vijay Gupta from 1/5/2024	X
1056	Lili Hu, Phillip Miller, Junlan Wang, 2009, “High strain-rate spallation and fracture of tungsten by laser-induced stress waves,” <i>Materials Science and Engineering A</i> , 504 (2009) 73-80 (“Wang-2009”)	X

I. INTRODUCTION

Patent Owner’s (“PO”) entire Motion to Exclude (Paper 35 (“MTE”)) is premised on its claim that the Petition does not allege Wang-Dissertation is prior art under both §§ 102(a) and 102(b). But PO’s own arguments—advanced in its Preliminary Response—confirm this is untrue. Indeed, PO directly addressed the availability of Wang-Dissertation under § 102(a), inviting a response from Petitioner. Rather than continue to litigate the issue of public availability on the merits, PO now seeks to exclude evidence highly relevant to a key issue in this IPR: the public availability of Wang-Dissertation. The Board should deny PO’s Motion.

II. PROCEDURAL HISTORY

The Petition identifies Ground 1 as “§ 102 – Wang-Dissertation (Ex-1005).” Paper 1 (“Pet.”) at 3. The Petition goes on to state that each of the cited references “are prior art under *at least* pre-AIA 35 U.S.C. §102(b) ...” (*id.* at 4, emphasis added) and that “Wang-Dissertation is prior art *at least* under §102(b) (*id.* at 13, emphasis added).

PO’s Preliminary Response states that “[i]f 102(a) were to be implicated, earlier invention could be shown in ‘Glass-Modified Stress Waves For Adhesion Measurement Of Ultra Thin Films For Device Applications,’ authored by Gupta et al.” Paper 7 (“POPR”) at 3. However, PO abandoned this argument, as its Response does not address § 102(a) at all. *See generally* Paper 19 (“POR”).

Petitioner's Reply (Paper 26) includes a section entitled "The Undisputed Facts Confirm that Wang-Dissertation is Prior Art," which addresses § 102(b) (Reply at 4-12) and also addresses § 102(a). *Id.* at 12-13. The Reply directly rebuts and even cites to PO's earlier statement about § 102(a). *Id.* at 12 ("PO is also incorrect that Wang-Dissertation is not available as § 102(a) prior art. *See* PO Preliminary Response ('POPR,' Paper 7), 3.").

III. ARGUMENT

A. There is No Dispute the Petition Advances Arguments Under § 102(a)

Though PO concedes that Petitioner relies on Exs. 1041-1051 to support its argument that Wang-Dissertation (Ex. 1005) qualifies as prior art under § 102(a) (MTE at 1-4), PO erroneously claims that public availability of Wang-Dissertation under §102(a) is "an improper new theory raised by Petitioner in its Reply," such that these exhibits allegedly lack relevance to "any ground of invalidity Petitioner raised in the Petition." *Id.* at 3 ("Each of these new references, including each paragraph of the Supplemental Hsieh-Yee Declaration (Ex.1041)... relate only to Petitioner's new theory that the Wang-Dissertation (Ex.1005) qualifies as [] prior art under § 102(a)."); *see also id.* at 6 ("these identified paragraphs and references are only relevant to whether the Wang-Dissertation (Ex.1005) qualifies as prior art under 35 U.S.C. § 102(a)").

As noted above in Section II, the Petition broadly identified Ground 1 as a “§ 102” ground. *Supra* Section II; Pet. at 3. The Petition states that the references (including Wang-Dissertation) are prior art under “at least” § 102(b)—which is non-limiting.¹ If Wang-Dissertation was described in a printed publication in this or a foreign country more than one year prior to the date of application for patent in the United States (i.e., qualifies as prior art under § 102(b)), then it necessarily was also described in a printed publication in this or a foreign country before the invention thereof by the applicant for a patent (i.e., qualifies as prior art under § 102(a)), given that PO has not sworn behind the reference and given that Dr. Wang (author of Wang-Dissertation) is clearly a different person than Dr. Gupta (named inventor of the ’684 patent challenged in this IPR).²

There can be no dispute PO was on notice that Wang-Dissertation qualifies as prior art under § 102(a) because in its very first brief PO explicitly mentioned § 102(a). *Supra* Section II; POPR at 3 (“If 102(a) were to be implicated, earlier invention could be shown in ... ”); *Genzyme Therapeutic Prod. Ltd. P’ship v.*

¹ § 102(a) and § 102(b) as discussed herein are pre-AIA 35 U.S.C. §§ 102(a), (b).

² As noted in Petitioner’s Reply, “[w]hile PO previously alleged Ex-2001 could demonstrate invention prior to [March 5, 2004] (*see* POPR at 3), PO waived this argument by failing to raise it after institution.” Reply at 13.

Biomarin Pharm. Inc., 825 F.3d 1360, 1366 (Fed. Cir. 2016) (“The critical question for compliance with the APA and due process is whether [the appellant] received ‘adequate notice of the issues that would be considered, and ultimately resolved, at that hearing.’”). There would have been no reason for PO to mention § 102(a) if § 102(a) were not within the scope of this IPR and the Petition. At the very least, PO was on notice about the § 102 ground (*supra* Section II; Pet. at 3), and PO invited further argument regarding qualification as prior art under § 102(a) specifically through its POPR. And there can be no doubt PO was on notice about the issue of public availability (accessibility) of Wang-Dissertation, which is the touchstone in determining whether a reference constitutes a “printed publication” for both § 102(a) and § 102(b). *See In re Hall*, 781 F.2d 897, 898–99 (Fed. Cir. 1986) (“‘[P]ublic accessibility’ has been called the touchstone in determining whether a reference constitutes a ‘printed publication’ bar under 35 U.S.C. § 102(b)”); *B/E Aerospace, Inc. v. C & D Zodiac, Inc.*, 709 F. App’x 687, 697 (Fed. Cir. 2017) (non-precedential); *see also Lynk Labs, Inc. v. Samsung Elecs. Co.*, 125 F.4th 1120, 1130 (Fed. Cir. 2025).

Therefore, there is not any unfair surprise to PO or any APA violation here. *See* MTE at 5; *see also Genzyme*, 825 F.3d at 1366.

B. Exhibits 1041-1051 and Petitioner’s Associated Arguments Are Not Improper New Evidence/Arguments

While PO cites cases for the proposition that “Petitioners cannot raise new arguments or present new evidence in its Reply” (MTE at 5-6), PO ignores that the Federal Circuit has held (more recently than any of the Federal Circuit cases cited in Section III of the MTE) that a petitioner does not improperly offer new arguments/theories by merely expanding on previously raised arguments/theories and responding to a patent owner’s assertions without advancing a “meaningfully distinct [invalidity] contention.” *Rembrandt Diagnostics, LP v. Alere, Inc.*, 76 F.4th 1376, 1383 (Fed. Cir. 2023) (citing *Ariosa Diagnostics v. Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Cir. 2015)). As noted above (*supra* Section II), PO understood that the Petition alleged anticipation by Wang-Dissertation under § 102 and public availability of Wang-Dissertation (the same public availability issue applicable to both § 102(a) and § 102(b)). *Supra* Section II; Pet. at 13-14 (discussion about public availability of Wang-Dissertation). Petitioner expanded on these same theories and directly responded to PO’s related arguments in its Reply. *See* POPR at 3 (PO discussing § 102(a)); Reply at 12 (“PO is also incorrect that Wang-Dissertation is not available as § 102(a) prior art.”).

Moreover, Exhibits 1041-1051 and Petitioner’s arguments regarding these exhibits are directly responsive to the Institution Decision’s suggestion to “further

develop the record regarding these publication issues during the course of the trial.” Paper 8 (“ID”) at 18.

Therefore, Exhibits 1041-1051 and Petitioner’s arguments regarding those exhibits are not improper new evidence/arguments and should not be excluded.

C. Exhibits 1041-1051 are Relevant to Public Availability of Wang-Dissertation

The MTE states that “[e]ach of Petitioner’s Exs. 1041-1051 should be excluded in their entirety for lack of relevance.” MTE at 6-9 (e.g., section headings for Sections IV.A and IV.B, mentioning only “Irrelevant”). PO offers no other justification for their exclusion. As an initial matter, the bar for relevance is low. *See OddzOn Prods., Inc. v. Just Toys, Inc.*, 122 F.3d 1396, 1407 (Fed. Cir. 1997) (noting the “low threshold for relevancy”). Particularly given that the Board has specifically invited the parties to further develop the record regarding public availability of Wang-Dissertation (ID at 18) and that Exs. 1041-1051 pertain to public availability of Wang-Dissertation, PO’s allegation that these exhibits lack relevance is bizarre and incorrect. PO narrowly frames the issue as one of relevance to only § 102(a)—erroneously calling qualification of Wang-Dissertation as prior art under § 102(a) an improper new theory—and misses or ignores that the issue is more broadly one of public availability of Wang-Dissertation.

All of Exhibits 1041-1051 pertain to, and are relied upon by Petitioner to establish, public availability of Wang-Dissertation. Exhibit 1041 is the Supplemental

Declaration of Dr. Hsieh-Yee, who offers opinions regarding the public availability of Wang-Dissertation, a central issue in this IPR. Dr. Hsieh-Yee relies on each of Exhibits 1042-1051, which corroborate her testimony. *See generally* Ex. 1041. In particular, Dr. Hsieh-Yee relies on Exhibits 1042-1043 to confirm that “interested users could reach out to the library system of UIUC or ProQuest to access the Wang dissertation” as of March 10, 2003. Ex-1041, ¶¶6-12. Exhibit 1042 is the bibliographic and MARC records for Wang-Dissertation obtained from the online catalog of the University of Illinois, Urbana-Champaign (“UIUC”) library system and Exhibit 1043 is the OCLC FirstSearch record for Wang-Dissertation and evidences the record creation date and library location. Dr. Hsieh-Yee separately relies on Exhibits 1044-1051 to confirm that Wang-Dissertation was publicly available via ProQuest by March 4, 2003, and to rebut PO’s arguments regarding public availability of Wang-Dissertation. Ex-1041, ¶¶13-23. Exhibits 1044-1047 include ProQuest Digital Dissertations policies at or near the time of Wang-Dissertation’s publication. Exhibit 1048 includes copyright information for Wang-Dissertation, and Exhibit 1049 include the Library of Congress’s indexing and copyright records for the same. Finally, Exhibits 1050 and 1051 evidence and analyze ProQuest’s Dissertation Abstracts policy, an issue PO put directly at issue in its POR. *See* POR at 16-17. Thus, Exhibits 1042-1051 are directly relevant to public availability of Wang-Dissertation.

Public availability of Wang-Dissertation is the touchstone of the printed publication inquiry and is highly relevant to Grounds 1-3 as each of these grounds relies—in whole or in part—on Wang-Dissertation and thus on the availability of Wang-Dissertation as prior art. *See* Pet. at 3. Thus, Exhibits 1041-1051 are clearly relevant to an issue in this case, and should not be excluded.

IV. CONCLUSION

For at least the reasons above, the Board should deny PO's Motion to Exclude, as PO has not carried its burden under 37 C.F.R. § 42.20(c).

Date: June 30, 2025

Respectfully submitted,

/s/ Arvind Jairam

Arvind Jairam

Reg. No. 62,759

ajairam@mckoolsmith.com

MCKOOL SMITH, P.C.

1717 K St. NW, Suite 1000

Washington, DC 20006

Telephone: (202) 370-8301

Facsimile: (202) 370-8344

Casey L. Shomaker

Reg. No. 77,998

cshomaker@mckoolsmith.com

MCKOOL SMITH, P.C.

300 Crescent Court, Suite 1200

Dallas, TX 75201

Telephone: (214) 978-4218

Facsimile: (214) 978-4044

Steven J. Pollinger

Reg. No. 35,326

spollinger@mckoolsmith.com

MCKOOL SMITH, P.C.

303 Colorado Street, Suite 2100

Austin, Texas 78701

Telephone: (512) 692-8700

Facsimile: (512) 692-8744

Counsel for Petitioner

CERTIFICATION OF PAGE LIMIT

The undersigned hereby certifies that the above-captioned **PETITIONER'S OPPOSITION TO PATENT OWNER'S MOTION TO EXCLUDE** complies with the page limits of § 42.24(a) because it does not contain more than 15 pages. This paper also complies with the typeface requirements of 37 C.F.R. § 42.6(a)(2)(ii) and the type style requirements of 37 C.F.R. § 42.6(a)(2)(iii) and (iv).

Dated: June 30, 2025

By: /s / Arvind Jairam

Reg. No. 62,759

Counsel for Petitioner

CERTIFICATION OF SERVICE

The undersigned hereby certifies that the foregoing **PETITIONER'S
OPPOSITION TO PATENT OWNER'S MOTION TO EXCLUDE** has been
served on Patent Owner via email on the following counsel of record for Patent
Owner:

L. Roman Rachuba II
lrachuba@sughrue.com
Raja N. Saliba
rsaliba@sughrue.com
David P. Emery
demery@sughrue.com
Mark Boland
mboland@sughrue.com
John T. Callahan
jcallahan@sughrue.com
SUGHRE MION, PLLC
2000 Pennsylvania Ave., NW
Washington, DC 20037

PR00147@sughrue.com

Dated: June 30, 2025

By: /s / Arvind Jairam
Reg. No. 62,759