

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WESTERN DIGITAL TECHNOLOGIES, INC.,
Petitioner,

v.

GODO KAISHA IP BRIDGE 1,
Patent Owner.

Case No. IPR2024-01493
Patent No. 10,680,167

PATENT OWNER'S MOTION TO STRIKE

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2025	RESERVED
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2027	JST owned patent wins Future Creative Invention Prize at the National Invention Award 2021, Japan Science and Technology Agency, <i>available at</i> https://www.jst.go.jp/report/2021/210525_e.html
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2029	AIST wins three Science and Technology Awards in the 2016 Minister of Education, Culture, Sports, Science and Technology Commendation for Science and Technology, <i>available at</i> https://www.aist.go.jp/aist_j/news/prize/pr20160412_3.html
2030	Yuasa, S., “IEEE Magnetics Society Distinguished Lecturers for 2012: Magnetoresistance and Spin-Transfer Torque in Magnetic Tunnel Junctions,” <i>IEEE Transactions on Magnetics</i> , vol. 48, no. 1, 2012, p.3
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2034	AIST: 34th Inoue Harunari Prize, <i>available at</i> https://www.aist.go.jp/aist_j/news/prize/itemid025-000082.html
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2053	Declaration of Caroline Ross, Ph.D.
2054	CV of Dr. Caroline Ross, Ph.D.
2055	Japanese Patent No. JP 5120680 B2 with certified English translation
2056	File History of U.S. Patent Application No. 10/824835 (EX1092 in <i>Western Digital v. IP Bridge</i> , IPR2025-00701)
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2058	Saito, Y., et al. “Correlation between Barrier Width, Barrier Height, and DC Bias Voltage Dependences on the Magnetoresistance Ratio in Ir–Mn Exchange Biased Single and Double Tunnel Junctions,” <i>Jpn. J. Appl. Phys.</i> , vol. 39 (2000), pp. L 1035–L 1038.
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2064	Errata to EX2018 - Deposition of Jeffrey Bokor, Ph.D. (June 25, 2025)
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2072	EX2024 - The 23rd (FY2022) Japan Society of Applied Physics Achievement Award Recipients (with English translation), The Japan Society of Applied Physics, https://www.jsap.or.jp/outstanding-achievementaward/recipients/recipients23 with Amended Certification of Translation [SUPPLEMENTAL EVIDENCE - NOT FILED]
2073	Certified English Translation of EX2029 - AIST wins three Science and Technology Awards in the 2016 Minister of Education, Culture, Sports, Science and Technology Commendation for Science and

Exhibit	Description
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2074	Certified English Translation of EX2032 - AIST, “Winner of the 20th Tsukuba Award,” <i>available at</i> https://www.aist.go.jp/aist_j/news/prize/itemid025-000077.html [SUPPLEMENTAL EVIDENCE - NOT FILED]
2075	Certified English Translation of EX2034 - AIST: 34th Inoue Harunari Prize, <i>available at</i> https://www.aist.go.jp/aist_j/news/prize/itemid025-000082.html [SUPPLEMENTAL EVIDENCE - NOT FILED]
2076	Certified English Translation of EX2035 - Technological seeds that overcome the valley of death (Shinji Yuasa/Head of the Spintronics Group, National Institute of Advanced Industrial Science and Technology), <i>available at</i> https://scienceportal.jst.go.jp/explore/highlight/20090717_01/ [SUPPLEMENTAL EVIDENCE - NOT FILED]
2077	Declaration of Caroline Ross, Ph.D. [SUPPLEMENTAL EVIDENCE - NOT FILED]
2078	Declaration of Dara Del Rosario [SUPPLEMENTAL EVIDENCE - NOT FILED]
2079	Transcript of October 29, 2025 Board Conference Call
2080	U.S. Patent Application Ser. No. 10/824,835 [cited as deposition EX2079 in EX2085, Deposition of Jeffrey Bokor, Ph.D. (Oct. 30, 2025)]
2081	U.S. Patent Application Ser. No. 10/646,246
2082-2084	RESERVED
2085	Deposition of Jeffrey Bokor, Ph.D. (Oct. 30, 2025)

Patent Owner (“IPB”) requests that the Board strike: (1) the below-identified arguments that POSAs would have reasonably expected success in forming MgO(001) on amorphous CoFeB based on Parkin and new evidence alleging showing forming MgO(001) on other amorphous materials (Reply, 1, 5-7 (§II.C), 7-10 (§II.D), 12-13 (citing §§II.C, II.D), 15 (citing §II.C), 27 (same)); and (2) new evidence EX1097-EX1099, EX1105 ¶¶6-22, and EX2018, 134:1-138:11.

I. REASONS SHOWING GOOD CAUSE FOR REQUESTED RELIEF

A motion to strike is warranted where “a reply clearly relies on a new theory not included in prior briefing, and where addressing this new theory during oral hearing would prejudice the opposing party.” Trial Practice Guide (“TPG”), 80-81.

A. The Reply “Clearly Relies on a New Theory Not Included in Prior Briefing”

The Petition *never argues* that: (1) the (001) crystalline CoFe layer 520 in Parkin Fig. 11 is optional (so that MgO barrier 540 would form on amorphous CoFeB layer 515); or (2) that a POSA reasonably expected to achieve a MgO(001) barrier on amorphous CoFeB because others achieved MgO(001) on different amorphous materials. These are new Reply arguments.

1. The Petition Never Alleged MgO(001) Would Form on Amorphous CoFeB and Cited No Evidence Supporting That

Ground 1 mapped limitation 1[b] to Bowen’s “forming an MgO layer epitaxially” over its (001) Fe layer despite having replaced Bowen’s (001) Fe underlayer with amorphous CoFeB. Pet., 28-29. **Ground 1** alleged that forming an

MgO barrier over a ferromagnetic layer was “conventional,” (*id.*, 29), citing the ’167 patent (EX1013) and the description of “high quality” MgO(001) films in EX1045 at 8. The “conventional” MgO films in EX1045 were “[s]ingle-crystal epitaxial MgO films... grown directly on high-quality Fe single crystal” (EX1045, 1). **Ground 1** mapped limitation 1[e] to Bowen alone and alleged that it “would have been obvious to *use* a polycrystalline MgO with the (001) crystal plane preferentially oriented in place of Bowen’s single-crystal MgO barrier.” Pet., 33. **Ground 1** alleged that a POSA “readily understood that polycrystalline MgO(001) could be *used* in place of single-crystal MgO(001)[.]” *Id.*, 34-35. **Ground 1** mapped limitation 11[b] to its mapping for 1[b] and 1[e]. *Id.*, 47.

Ground 1 never alleged that POSAs would have reasonably expected success in forming MgO(001) on amorphous CoFeB. While the Petition alleged “it would have been obvious to use” polycrystalline (001) MgO “in place” of Bowen’s single-crystal (001) MgO, it never alleged that MgO barrier would achieve (001) texture when formed on amorphous CoFeB. Pet., 28-29, 33-35; POR, 13-29.

The evidence the Petition cited for limitations 1[b], 1[e], and 11[b] (the “MgO(001) limitations”) does not show MgO achieving (001) texture on amorphous CoFeB. Pet., 28-29 (*citing* EX1026, 1655; EX1045, 8; EX1024, ¶¶137-140), 33-34 (*citing* EX1026, 1655; EX1062, 9:58-10:2, 13:3-10, 14:35-41, 15:15-18, 18:49-51; EX1024, ¶¶171-178), 47 (*citing* EX1026, 1655, Fig. 1; EX1024,

¶217). The Petition at 34 cites EX1026, 1656; EX1038; EX1047, 509, 511 nn. 5-7; and EX1008, 289, 299-303 for a *different* proposition that it would have been “obvious” to *use* “polycrystalline” MgO(001) “in place of Bowen’s single-crystal MgO barrier.” The Petition cites EX1013, 1:42-46 (Pet., 29) and 4:39-41 (Pet., 35) for reasons having nothing to do with forming MgO(001) on CoFeB.

The Parkin sections that the Petition cited to meet the MgO(001) limitations teach forming MgO(001) on a crystalline (001) underlayer; they do *not* explain anything about achieving MgO(001) on amorphous CoFeB in Ground 1’s combination that *eliminates* Bowen’s (001) underlayer. Pet., 33-34. Nothing in Bokor’s declaration (EX1024) ¶¶137-140, 171-178, and 217 teaches forming a MgO(001) barrier on amorphous CoFeB either.

Ground 2 mapped limitation 1[b] to Nagahama’s forming MgO over a “(001)-highly-oriented” ferromagnetic layer. Pet., 54 (citing EX1027, [0073]); EX1027, [0073]. **Ground 2** simply asserts that it replaced Nagahama’s (001) “lower ferromagnetic layer” with “a CoFeB layer” and alleges that “[f]orming an MgO layer over a ferromagnetic layer... was conventional.” *Id.*, 54-55 (citing the Ground 1 analysis for limitation 1[b]). **Ground 2** mapped limitation 1[e] to Nagahama alone and alleged that Nagahama’s description of “a polycrystalline ‘(001)-highly-oriented MgO barrier layer’” met limitation 1[e]. *Id.*, 57-58. **Ground 2** mapped limitation 11[b] to its mapping for 1[b] and 1[e]. *Id.*, 67.

Ground 2 cites EX1024, ¶258 as supporting its contention that Nagahama formed “an MTJ with an MgO layer over a lower ferromagnetic layer” in the Nagahama, [0073]-[0074] embodiment. Pet., 54. But EX1024, ¶258 discusses Nagahama’s double underlayer [0064]-[0065], not the “(001)-highly-oriented MgO barrier layer” in [0073]-[0074]. EX1027, [0064]-[0065], [0073]-[0074].

2. The Reply Makes New Arguments Based on New Evidence

The POR explained that the Petition: (1) never alleged that forming MgO on amorphous CoFeB would achieve polycrystalline MgO(001) (POR, 19-21); and (2) cited no evidence that a POSA reasonably expected MgO(001) would form on amorphous CoFeB (POR, 12-27). The only proper reply would have shown where *the Petition* allegedly did so. Instead the Reply makes *new* arguments: (1) Parkin discloses forming MgO(001) “over” amorphous CoFeB (Reply, 5-7); and (2) prior art disclosing that MgO(001) formed on *different* substrates provided a reasonable expectation that MgO(001) would form on amorphous CoFeB (*id.*, 7-10).

a. New Argument that Parkin Teaches Forming MgO(001) on Amorphous CoFeB

The Petition never argued that Parkin taught that forming an MgO barrier on an amorphous CoFeB underlayer would achieve MgO(001). Reply, 5-7; *supra* §I.A.1. The Reply confirms that this is new argument by needing *new evidence* that the Petition never cited to meet the MgO(001) limitations (*supra* §I.A.1). Reply, 5-7 (citing new evidence EX1062, Fig. 11, 22:29-63, 23:6-15 and EX2018,

134:1-138:11), *id.* (citing EX1062, 17:7-10, 17:19-20, 19:16-17 and EX1024, ¶¶131-135 that were not previously cited for the MgO(001) limitations).

The Reply misrepresents Fig. 11 by annotating layer 520—on which MgO barrier 540 is formed—as “CoFeB electrode (storage).” Reply, 7. Interface layer 520 is a ***crystalline(001)*** CoFe underlayer. Parkin, 22:29-23:11. The Reply cites Bokor’s testimony alleging (not in the Petition) that layer 520 is optional and, on that basis, contending (not in the Petition) that Parkin teaches “forming an MgO on top of amorphous [CoFeB].” EX2018, 134:24-135:3, 135:16-22. *See* EX2085, 117:15-120:4 (Bokor admitted that treating Fig. 11’s interface layer 520 as “optional” is the ***only*** Parkin disclosure he found for allegedly forming MgO(001) on amorphous CoFeB). This is clearly a new argument. The Petition never cited Parkin ***Fig. 11*** for ***any*** limitation; it never mentioned Fig. 11’s interface layer 520, let alone alleged that interface layer 520 is optional.

Reply at 6-7 obfuscates by (1) citing arguments about Parkin Fig. 3 being “inverted” that the Petition made for a ***different*** limitation (1[a]) concerning an amorphous CoFeB lower ***electrode*** (not a MgO(001) barrier), and (2) citing POPR argument in a ***different case*** (IPR2024-01447), about a limitation (1[e])—in a ***different patent***—that ***did not involve MgO(001)***. The argument that Parkin’s “inverted” Fig. 3A discloses forming MgO(001) on amorphous CoFeB is new.

Striking Petitioner’s argument that Fig. 11 teaches forming MgO(001) on

amorphous CoFeB—*i.e.*, that (001) crystalline interface layer 520 is optional—is critical because it is clearly new, while Parkin and **both** experts refute Petitioner’s other arguments about “inverted” Figs. 3 and 11. Parkin, 16:47-17:7 (Fig. 3’s MTJ “reference” electrode 115 formed beneath the MgO and “storage” electrode 175 formed above the MgO), 17:7-8 (“inverted” means inverting the reference/storage electrodes positions relative the MgO layer), 17:3-25 (Fig. 3’s MgO barrier is formed using methods in Ser. No. 10/824,835 (EX2080 [cited as EX2079 in EX2085]), 23:6-11 (Fig. 11 MgO barrier 540 formed by methods in EX2080 and Ser. No. 10/646,246 (EX2081)); EX2081, 91:5-21 (forming MgO barrier on crystalline(001) underlayer); EX2085, 75:12-26 (**Bokor** admitted EX2080, 35:12-17 describes forming the MgO layer on a **crystalline(001) underlayer**, not on amorphous CoFeB), 42:8-45:24 (**Bokor** admitted the inverted “sentence is not describing the **composition** of the layers”); EX1101 (Ross), 159:4-7 (Parkin “says the device may be inverted. It doesn’t given any further details”), 160:20-161:5.

Citing Parkin for MgO limitations does not entitle Petitioner to cite **different** parts of Parkin (including Fig. 11’s allegedly “optional” interface layer 520) in Reply to advance a **different** argument not in the Petition. *Ariosa Diagnostics v Verinata Health, Inc.*, 805 F.3d 1359, 1367 (Fed. Circ. 2015) (affirming Board’s refusal to consider Reply arguments relying “on previously unidentified portions of a prior-art reference to make a meaningfully distinct

contention”), *citing* Rule 104(b)(5)). Rule 104 imposes requirements on the *Petition’s* “content” and requires (“must”) that the *Petition* identify “*specific portions* of the evidence that support the challenge.” 37 C.F.R. §42.104(b)(5).

b. New Argument that POSAs Expected MgO(001) to Form on CoFeB Because MgO(001) Allegedly Formed on Other Amorphous Substrates

The Reply’s argument that POSAs reasonably expected MgO(001) to form on CoFeB because it allegedly formed on different amorphous substrates (Reply, 7-10) was not in the *Petition* (*supra* §I.A.1) and relies on new evidence: EX1097-EX1099, new Bokor testimony (EX2018, 134:1-138:11; EX1105 ¶¶6-22), Wulff (EX1036), and new portions of Nagahama (EX1027 ¶¶55-59, 61, 67). The *Petition* never cited Wulff, and cannot incorporate by reference argument that Wulff taught MgO(001) on an amorphous substrate from Bokor’s declaration. POR, 21-22.

The Reply’s citations to “seed” layers in Nagahama and Inaba are plainly new. Reply, 8-10. In each seed layer, the MgO is amorphous at the underlayer surface and only becomes crystalline away from that interface. Reply, 8 (admitting for Nagahama); Inaba, 2373 (“MgO initial layer shows *no clear crystallographic structure*”). The *Petition* mapped the MgO(001) limitations to a *different* structure, *i.e.*, Butler/Nagahama *barrier* layers that are MgO(001) through their entire thicknesses. Pet., 28-29, 33-35, 54-55, 57-58. Bokor admitted an MgO barrier layer as claimed is crystallized at the underlayer interface. EX2085, 123:18-124:5.

c. New Argument that POSAs Reasonably Expected MgO(001) to Form on CoFeB

The Reply's assertion that POSAs reasonably expected MgO(001) to form on CoFeB was not in the Petition (*supra* §I.A.1) and rests on the clearly new arguments discussed *supra* §§I.A.2.a-I.A.2.b.

3. New Arguments Cannot Establish *Prima Facie* Obviousness

The *Petition* must make its case “with particularity.” 35 U.S.C. §312(a)(3); *see also* 37 C.F.R. §§42.22 (requiring a “detailed explanation”) and 42.104(b)(5) (*Petition* must identify supporting evidence). The Reply impermissibly “proceed[s] in a new direction” by “rais[ing] a new issue” and relying on “new evidence” in an attempt to belatedly demonstrate the reasonable expectation of success necessary to establish *prima facie* obviousness. TPG, 73-74. That is clearly improper.

B. IPB Would Be Prejudiced By Having to Address Petitioner's New Arguments at Oral Hearing

A motion to strike is warranted “where addressing this new theory during oral hearing would prejudice the opposing party.” TPG, 81. IPB's request to have its expert address the Reply's new evidence was denied. Paper 29, 4. Having to respond at oral hearing without the benefit of supporting expert testimony would be prejudicial to IPB. That prejudice is compounded because the Reply's new arguments rest entirely on the naked say-so of Petitioner's expert.

Parkin - Bokor admitted Parkin Fig. 11 is the only prior art he alleges taught MgO(001) on CoFeB. EX2085, 108:6-110:4, 94:7-95:12 (“I don't have any other

examples”). Parkin’s teachings, that Bokor *ignored*, refute his testimony. Parkin forms Fig. 11’s MgO barrier with methods in applications Parkin incorporates by reference. EX1062, 23:6-11, 19:1-6. Parkin itself says these methods form MgO on a templating *crystalline(001) underlayer* (not amorphous CoFeB). EX1062, 3:24-41; EX2080, 58:1-4, 24:21-28:3, 35:12-36:19, 40:11-41:1, 45:19-46:12; EX2085, 57:12-59:22, 60:8-24, 61:24-62:18, 63:20-64:6, 65:21-71:19, 73:4-75:16, 97:16-98:1, 102:2-104:10, 105:14-108:4. Bokor wrongly alleged the incorporated-applications were not “[dis]positive.” EX2085, 55:11-17, 76:7-22. They directly refute Bokor’s assertion that Fig. 11’s MgO(001) is formed on CoFeB. Parkin’s work was as well-known in the field as the inventor Yuasa’s. Reply, 27 (Parkin’s work cited over four thousand times). Everyone knew their different contributions. The POR cites papers acknowledging Parkin’s contributions yet attributing to *Yuasa* the discovery that MgO(001) could form on amorphous CoFeB. Bokor admitted (EX2085, 125:7-129:11) that EX2022 acknowledged Parkin but praised the “significance” of *Yuasa’s* method that formed “(001) MgO texture” on CoFeB. EX2022, 106-107, 111; POR, 62. EX2023 acknowledged Parkin yet praised *Yuasa’s* “novel idea[]” that formed MgO on “CoFeB amorphous” rather than crystalline(001) electrodes and showed “[u]pon annealing CoFeB and MgO can be crystallized.” EX2023, 2; POR, 62-63; EX2085, 129:13-137:15. The Reply’s arguments rest on Bokor fabricating a “teaching” in Parkin no one has ever seen.

Different amorphous substrates – no prior art reference says MgO formation on ***different*** amorphous substrates was predictive of MgO formation on CoFeB. The Reply’s argument is based entirely on Bokor’s naked say-so. But Bokor admitted he is “***no expert. I’m no crystal grower.***” EX2018, 77:9-78:3. He admitted that predicting whether MgO will crystalize is “complicated” (EX2085, 178:15-179:6, 201:14-202:7) and depended on numerous factors—including the ***substrate material*** (EX2085, 154:9-155:2, 158:1-18), and other factors he did not even understand (*id.*, 185:10-186:17). He purportedly “relied on statements in the literature from experts who... ***presumably*** have a detailed understanding of all of those factors” (EX2085, 177:13-180:4) but cited no reference that MgO(001) would form on CoFeB in particular. The Reply’s “other substrate” argument rests entirely on Bokor’s unreliable testimony.

It would be highly prejudicial for IPB to have to devote substantial oral hearing time disproving the Reply’s new arguments and evidence, without specific testimony from its expert Dr. Ross, particularly where the Reply’s arguments hinge on Bokor’s naked say-so on topics about which he is no expert and not credible.

II. CONCLUSION

The Board should strike Petitioner’s new Reply arguments and new evidence EX1097-EX1099, EX1105 ¶¶6-22, and EX2018, 134:1-138:11. TPG, 81.

Dated: November 13, 2025

/Adam R. Wichman/

Adam R. Wichman, Reg. No. 43,988

CERTIFICATE OF SERVICE UNDER 37 C.F.R. § 42.6 (e)(4)

I certify that on November 13, 2025, a copy of the foregoing document, including any exhibits filed therewith, is being served via electronic mail, as previously consented to by Petitioner, upon the following:

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Date: November 13, 2025

/Dara Del Rosario/
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