

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE OFFICE OF THE UNDER SECRETARY OF COMMERCE
FOR INTELLECTUAL PROPERTY AND DIRECTOR OF THE UNITED
STATES PATENT AND TRADEMARK OFFICE

WOLFSPEED, INC.,
Petitioner,

v.

THE TRUSTEES OF PURDUE UNIVERSITY,
Patent Owner.

IPR2022-00761
Patent 7,498,633 B2

Before KATHERINE K. VIDAL, *Under Secretary of Commerce for
Intellectual Property and Director of the United States Patent and
Trademark Office.*

DECISION

Granting *Sua Sponte* Director Review,
Vacating the Decision Denying Institution, and
Remanding to the Patent Trial and Appeal Board
for Further Proceedings

I. INTRODUCTION

The Office received a request for Precedential Opinion Panel (“POP”) review of the Board’s Decision Denying Institution of *inter partes* review in the above-listed proceeding. Ex. 3001; *see* Paper 9 (“Decision” or “Dec.”).¹ Specifically, Wolfspeed, Inc. (“Petitioner”) requests that the POP rehear the Board’s Decision to discretionarily deny institution under 35 U.S.C. § 325(d). *See* Ex. 3001; *see also* Paper 10 (“Petitioner’s Request for Rehearing” or “Req. Reh’g”).

I have reviewed the request, the Board’s Decision, as well as filed papers and exhibits in the above-listed proceeding. I determine that *sua sponte* Director review of the Board’s Decision is appropriate. *See Interim process for Director review* § 8 (setting forth scope of Director review); § 10 (issues that may warrant Director review), § 22 (providing for *sua sponte* Director review of institution decisions in AIA proceedings and explaining that “the parties to the proceeding will be given notice” if Director review is initiated *sua sponte*). Concurrent with this Order, the POP has dismissed the requests for rehearing and POP review. No additional briefing from the parties is authorized or necessary to resolve the issue presented here. *See Interim process for Director review* §§ 13, 22 (explaining that the Director may give the parties to the proceeding an opportunity for briefing if Director review is initiated *sua sponte*).

Having reviewed the record in this proceeding, I determine the Board erred in finding that the prior art asserted in this proceeding is substantially the same prior art asserted in a previous proceeding and, accordingly, also

¹ Public Interest Patent Law Institute and SAS Institute Inc. submitted amicus forms expressing support for review. Ex. 3002; Ex. 3003.

erred in exercising discretion to deny institution under § 325(d) on that basis. As further detailed below, I determine that a material difference exists between the prior art asserted in this proceeding and the prior art that was previously presented to the Office. As such, based on the record before me, I determine that substantially the same prior art was not previously presented to the Office.

I vacate the Board’s Decision Denying Institution and remand this proceeding to the Board to reassess its § 325(d) analysis consistent with this decision. If the Board determines that it should not exercise its discretion to deny institution of *inter partes* review under § 325(d), then the Board should address the remaining issues raised in the Petition and Preliminary Response to determine whether to institute an *inter partes* review.

II. BACKGROUND

Petitioner challenges claims 9–11 of U.S. Patent No. 7,498,633 B2 (Ex. 1001,² “the ’633 patent”) in this Petition for *inter partes* review. Petition 7 (Paper 2, “Pet.”). A different petitioner (STMicroelectronics, Inc.) challenged the same claims of the ’633 patent in IPR2022-00252. *STMicroelectronics, Inc. v. The Trustees of Purdue University*, IPR2022-00252, Paper 2, 4 (“the ’252 Petition” or “the previous petition”). The Board denied the ’252 Petition for failing to show a reasonable likelihood of prevailing with respect to any challenged claim. The Board denied the instant Petition under § 325(d) based on a finding that the prior art relied on in this Petition is the same or substantially the same as the prior art relied on in the previously denied ’252 Petition. Paper 9, 14.

² All exhibit citations are to the exhibits filed in this proceeding unless otherwise noted.

The '252 Petition challenged claims 9–11 over the combination of prior art references Ryu³ and Williams.⁴ IPR2022-00252, Paper 2 at 4. The '252 Petition relied on Ryu to teach a metal-oxide semiconductor field-effect transistor (“MOSFET”) and further relied on Figure 19E of Williams to teach a particular transistor topology, i.e., “base contact regions being spaced apart from each other in a direction parallel to the longitudinal axis,” as recited in independent claim 9. *Id.* at 39, 63, 77. The '252 Petition asserted that a person of ordinary skill in the art would have been motivated to use the transistor topology shown in Figure 19E of Williams in Ryu’s MOSFET in order to “help reduce on-resistance,” while continuing to provide the needed connection to “ruggedize” Ryu’s MOSFET. *Id.* at 63, 69–70, 77. In fact, the '252 Petition asserted that Williams itself suggests ruggedization as a motivation for the proposed modification, and that using the transistor topology of Figure 19E would provide transistor ruggedness. *Id.* at 68, 70–71 (citations omitted).

However, the Board’s denial of the '252 Petition explains that Williams expressly states that the use of the Figure 19E transistor topology results in a “less rugged” transistor. IPR2022-00252, Paper 13, 13–14, 17–18 (citing Ex. 1004, 17:15–19). As such, the Board found that the proffered motivation “is undercut by clear disclosures in Williams.” *Id.* at 20, 18 (“Petitioner proposes reasons for the combination of Ryu and Williams that run counter to clear disclosures within the four corners of the asserted prior art.”); *see also* IPR2022-00252, Paper 15, 12 (Board’s Decision on Petitioner’s Request for Rehearing). The Board concluded that the

³ U.S. Patent Application Publication No. 2004/0119076 A1, published June 24, 2004, filed October 30, 2003. Ex. 1003.

⁴ U.S. Patent No. 6,413,822 B2, issued July 2, 2002. Ex. 1006.

'252 Petition failed to show a reasonable likelihood of success on the unpatentability ground in light of the deficient motivation-to-combine showing and, accordingly, denied institution. IPR2022-00252, Paper 13, 20.

This Petition⁵ challenges claims 9–11 of the '633 patent over two separate grounds: (1) the combination of Ryu and Depetro⁶ and (2) the combination of Ryu and Choy.⁷ Pet. 7. Neither rely on Williams, or the same motivation-to-combine rationale based thereon, as utilized in the '252 Petition. Like the '252 Petition, this Petition relies on Ryu to teach a MOSFET in both grounds. *Id.* at 42, 74. This Petition, however, relies on each of Depetro and Choy, instead of Williams, to teach the relevant transistor topology feature of “base contact regions being spaced apart from each other in a direction parallel to the longitudinal axis.” Pet. 51 (citing Ex. 1004, Fig. 1), 81–82 (citing Ex. 1005, 3:32–40, Fig. 3). Specifically, this Petition asserts Depetro “teaches a [transistor] layout in which a plurality of p+ base contacts 14 are spaced apart within the n+ source region 13 in a direction parallel to the longitudinal axis,” as shown in Figure 1. *Id.* at 51. Further, this Petition asserts Choy “teaches a plurality of p-type base contact regions 10 defined in source region 9” which are “spaced apart” along a longitudinal axis, as shown in Figure 3. *Id.* at 81–82 (citing Ex. 1005, 3:32–40). The Petition explains that the ordinarily-skilled artisan would have been motivated to combine the identified teachings, including to “achieve the benefit of reduced on-resistance without compromising

⁵ The Petition here was filed after the '252 Petition filing but before the patent owner's preliminary response in that proceeding and before the Board's decision denying institution. *Compare* IPR2022-00252, Papers 2, 8, and 13, *with* Pet.

⁶ U.S. Patent No. 6,043,532, issued March 28, 2000. Ex. 1004.

⁷ U.S. Patent No. 5,171,705, issued Dec. 15, 1992. Ex. 1005.

ruggedness.” *Id.* at 66 n.9. The Petition explicitly addresses Williams’s acknowledgement that increasing the effective area of the n+ source region reduces the ruggedness of the device, and explains that Depetro accounts for the potential reduction in ruggedness by introducing a strongly doped p+ region at the edge of the body. *Id.* (citing Ex. 1004, 3:45–54).

The Board denied institution of *inter partes* review under § 325(d), applying the *Advanced Bionics*⁸ framework. *See* Dec. at 12–14. First, the Board determined that Depetro and Choy are substantially the same prior art as Williams, by comparing Figure 19E of Williams to Figure 1 of Depetro and Figure 3 of Choy. *Id.* at 12. The Board determined that “Depetro and Choy disclose the same formation of p+ regions,” i.e., base contact regions, “as windows in an n+ source region, as disclosed in Williams.” *Id.* at 12–13. The Board further determined that, in Petitioner’s Reply⁹ addressing § 325(d), “Petitioner does not address whether the Board materially erred in its decision denying institution in” the previous petition, under the second part of the *Advanced Bionics* framework, and, accordingly, the Board exercised discretion to deny institution of *inter partes* review under § 325(d). *Id.* at 14–15 (citing Paper 7, 2–3; Pet. 97).

III. DISCUSSION

I determine that the Board erred in finding that Depetro and Choy are substantially the same prior art as Williams and, from that, also erred in exercising discretion to deny *inter partes* review under § 325(d) on that

⁸ *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”).

⁹ Petitioner’s Reply in this proceeding was filed after the denial of the ’252 Petition.

basis. When assessing § 325(d), the Board applies the two-part framework set forth in *Advanced Bionics*. *Advanced Bionics*, Paper 6 at 8. The first part of that framework requires the Board to consider whether the same or substantially the same prior art or arguments previously were presented to the Office. *Id.* In particular, the Board considers “(a) the similarities and material differences between the asserted art and the previously presented prior art; (b) the cumulative nature of the asserted art and the previously presented prior art;” and “(d) the extent of overlap between arguments previously made and the manner in which petitioner relies on the prior art,” when considering the first part of the *Advanced Bionics* framework.¹⁰ *Id.* at 9 n.10 (quoting *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 (Dec. 15, 2017) (precedential as to § III.C.5, first paragraph)), 10. Only if the Board determines that the same or substantially the same art or arguments were previously presented to the Office does the Board then consider the second part of the *Advanced Bionics* framework — whether the petitioner has demonstrated material error by the Office. *Id.* at 8–9.

The Board’s analysis of the first part of the *Advanced Bionics* framework did not consider sufficiently the material differences between Williams, Depetro, and Choy. Williams, cited in the ’252 Petition, includes certain disclosures that are not present in Depetro and Choy, i.e., disclosures that were found to be highly relevant when assessing the obviousness

¹⁰ *Advanced Bionics* explains that *Becton, Dickinson* factors (a), (b), and (d) are relevant to “determin[ing] that the same or substantially the same art or arguments previously were presented to the Office,” while *Becton, Dickinson* “factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.” *Advanced Bionics*, Paper 6 at 10 (citations omitted).

grounds presented in the '252 Petition. Specifically, Williams discloses a transistor topology that results in a “less rugged” device. Ex. 1006, 17:15–19, Fig. 19E. As discussed above, that disclosure was the basis for the Board’s denial of the '252 Petition because it undercut the Petition’s basis for combining Williams with Ryu. Specifically, the '252 Petition asserted that the skilled artisan would have been motivated to apply the transistor topology of Figure 19E in Williams to “ruggedize” a transistor. IPR2022-00252, Paper 2, 69. But, as the Board pointed out, that motivation “runs counter to clear disclosures within the four corners” of Williams. IPR2022-00252, Paper 13, 18. That is, Williams’s disclosure that the transistor topology of Figure 19E results in a less rugged device was fatal to the '252 Petition.

Depetro and Choy, cited in the instant Petition, lack Williams’s disclosure regarding loss of “ruggedness.” Therefore, in this case, it is a material difference that neither Depetro nor Choy teaches that their transistor topologies result in a less rugged device, as Williams did. Indeed, Petitioner relies upon Depetro’s teachings and its expert’s testimony to assert that Depetro’s transistor topology would *not* compromise ruggedness, unlike Williams’s transistor topology. Pet. 66 n.9 (citing Ex. 1004, 3:45–54; Ex. 1010 ¶ 124). The Board’s Decision in this *inter partes* review did not address this material difference in the references.

For these reasons, I determine that Depetro and Choy are not substantially the same prior art as Williams, which was previously presented to the Office. The first part of the *Advanced Bionics* framework, however, also requires the Board to consider whether the same or substantially the same *arguments* were previously presented to the Office, which the Board did not address specifically in its Decision. *Advanced Bionics*, Paper 6 at 8;

see Dec. 12 n.6 (highlighting that “[t]he connector ‘or’ in Section 325(d)” means that either one of the prior art or arguments must be the same or substantially the same for discretionary denial). I remand this proceeding to the Board to complete the § 325(d) inquiry, under the two-part framework set forth by *Advanced Bionics*, consistent with the discussion herein.

IV. CONCLUSION

The Board erred in exercising discretion to deny institution of *inter partes* review under § 325(d). Because I determine that substantially the same prior art was not previously presented to the Office, I vacate the Board’s Decision Denying Institution. I remand this proceeding to the Board to reassess whether discretionary denial is warranted under § 325(d) consistent with my determination. Should the Board determine that discretionary denial is not warranted under § 325(d), the Board shall address the remaining issues presented in the record prior to institution to determine whether to institute an *inter partes* review.

V. ORDER

In consideration of the foregoing, it is hereby:

ORDERED that the Board’s Decision Denying Institution of *inter partes* review in IPR2022-00761 is *vacated*; and

FURTHER ORDERED that this proceeding is remanded to the Board for further proceedings consistent with this decision.

IPR2022-00761
Patent 7,498,633 B2

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