

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

SOLUS ADVANCED MATERIALS CO., LTD.,
Petitioner

v.

SK NEXILIS CO., LTD.,
Patent Owner

Case IPR2024-01463
U.S. Patent No. 11,591,706

**PATENT OWNER SK NEXILIS CO., LTD.’S REQUEST FOR DIRECTOR
REVIEW OF THE DECISION GRANTING INSTITUTION OF *INTER
PARTES* REVIEW**

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I. INTRODUCTION

SK nexilis Co., Ltd. (“PO”) respectfully requests Director Review of the Board’s decision instituting *inter partes* review (“IPR”) of claims 1-10 of U.S. Patent No. 11,591,706 (“the ’706 patent”), Paper 14 (“Decision on Institution” or “DI”) and that the Director deny institution. The Board’s DI relies on erroneous findings of material fact and reaches erroneous conclusions of law, while contravening important policy objectives directed to promoting judicial efficiency and consistency across panel decisions.

The Board made erroneous findings with respect to *Fintiv* factors 3, 4, and 6. Had the Board made a proper determination of any of these factors, the Board would have been compelled to deny institution under *Fintiv*. Specifically, with respect to Factor 6 the Board found that Factor 6 strongly favored institution, contradicting its own finding that only one of the two proposed Petition grounds was meritorious. And the alleged meritorious ground, Ground 1A, was in fact NOT meritorious. Rather, Petitioner failed to meet its burden to demonstrate (1) a motivation to combine references used in Ground 1A and (2) a reasonable expectation of success of the combination by inappropriately relying on extensive conclusory and flawed expert testimony without any corroboration that often was at odds with the references. Additionally, the extensive reliance on expert testimony contravenes the Director’s policy to limit reliance on expert testimony and is inconsistent with other

panel decisions. As such, rather than favoring institution, Factor 6 favors denial. Additionally, with respect to Factor 4 the Panel placed too much weight on Petitioner's partial *Sotera* stipulation, which does not establish this IPR as a true alternative to the district court proceeding. As to Factor 3, the parties and district court have made significant investments in the co-pending district court case and Petitioner was not diligent filing its Petition. The panel understates the investment and ignores Petitioner's lack of diligence. Thus, Factor 3 should favor denial.

Finally, three other IPRs addressing patents asserted in the co-pending district court litigation have been denied. Given that the District Court will consider the invalidity arguments of those patents, it will be more judicially efficient to have the Board deny here and have the district court consider the '706 patent along with the other three patents that have had IPRs denied.

II. THE PANEL ERRED IN ITS ANALYSIS OF THE *FINTIV* FACTORS.

The following table highlights erroneous determinations made for *Fintiv* Factors 3, 4, and 6. PO respectfully requests that the Director reconsider these findings, reach the findings below identified as "What the Board Should Have Found," and deny institution.

Factor	What the Board Found	What the Board Should Have Found
Factor 1 (Likelihood of Stay)	Neutral	Neutral
Factor 2 (Proximity of trial date to	Strongly Favors Denial	Strongly Favors Denial

projected FWD deadline)		
Factor 3 (Investment in Parallel Proceeding)	Neutral	Favors Denial
Factor 4 (Overlap of Issues)	Favors Institution	Favors Denial, or at Least Not Override Other Factors
Factor 5 (Identity of Parties)	Favors Denial	Favors Denial
Factor 6 (Merits and Other Considerations)	Strongly favors Institution	Favors Denial

A. Factor 6 favors denial: the merits are weak and based on extensive, conclusory, and questionable expert testimony.

1. The panel found only a single ground meritorious and institution should be denied to avoid wasting limited Board resources on deficient arguments.

Where only a subset of grounds in a petition present meritorious challenges, the Board has denied institution to avoid expending its limited resources on deficient arguments. *Chevron Oronite Co. v. Infieum USA L.P.*, IPR2018-00923, Paper 9 at 9-11 (PTAB Nov. 7, 2018) (denying institution on all claims where petitioner’s challenge was deficient for a subset of claims); *Deeper, UAB v. Vexilar, Inc.*, IPR2018-01310, Paper 7 at 41-43 (PTAB Jan. 24, 2019) (denying institution because instituting trial with respect to all claims and all grounds based on evidence and arguments directed to only two claims and one ground would not be an efficient use of the Board’s time and resources).

Here, the panel found only a *single ground*, Ground 1A, allegedly presents a

“particularly strong patentability challenge.” DI, 18. The panel correctly criticized Ground 2A and did not base its institution decision on that ground. DI, 48-49, 51. Consistent with *Chevron* and *Deeper*, as well as the Director’s recent policy statements to reduce waste and increase efficiency, the panel’s finding that only one of two grounds supports institution should favor denial. To find otherwise would require wasteful effort by the Board and the parties litigating Ground 2A—a ground that the panel already determined is flawed.

More specifically, the panel explicitly found Ground 2A was not persuasive, so pursuant to the Director’s recent policy statements to reduce waste and improve efficiency, the Director should deny institution to avoid requiring the Board and parties to waste resources on the Ground 2A deficient arguments during trial. Notably, the panel criticized Petitioner’s reliance on Dobashi in Ground 2A, finding that Dr. Randall’s RSm-derived measurement of PD is “inaccurate.” DI, 48-49, 51; POPR, 37, 33; EX1005, FIGs. 5-6. Proceeding to trial on a Ground based on expert testimony that has already been found to be “inaccurate” is starkly at odds with the Director’s initiatives to eliminate waste and improve efficiency.

2. The panel erred in determining that Ground 1A supports institution.

a. Petitioner’s combination rationale and alleged reasonable expectations of success fails at least because they are based on conclusory and unsupported expert statements.

Petitioner’s rationale for combination and alleged reasonable expectation of

success in both Grounds are substantially similar, and the panel does not separately analyze these arguments. DI, 46-17; Pet. 12, 57. A finding that the proffered motivation or expectation of success is deficient would be dispositive. Focusing on Ground 1A, the panel found each of the *three references* discloses *only one* of the three claimed properties. DI, 33. Each of the references in this piecemeal combination was also found to be *silent* as to the other *two properties*. *Id.*

The panel relies heavily on Dr. Randall's testimony, with nearly *four pages* describing its reliance on his testimony. DI, 40-44. Unlike the related IPRs, this panel credits Dr. Randall's testimony—untethered to the references—at least five times for various explanations of the art not supported by the art itself. For example, this panel credits Dr. Randall's testimony that: (1) *different* temperatures, *different* plating currents, *different* amounts of copper ions/sulfuric acid are “similar,” without support (DI, 35); (2) “[i]t would have been obvious to try *slightly* modifying Kim '761's solution by, for example, including the polyvinyl alcohol and/or small molecular weight glue incorporated into Cheng's solution, to obtain Cheng's TC(220) values,” without support that such a modification would be “slight” (DI, 35 (cleaned up, emphasis added)); (3) “[i]t would have been obvious to try *slightly* modifying Kim '761's solution by, for example, including the MPS, low molecular weight glue, and chlorine ions in the proportions disclosed by Wolski, to obtain Wolski's Rz and Ra values,” without support that such a modification would be

“slight” (DI, 37 (cleaned up, emphasis added)); (4) “the processes Kim ’761, Cheng, and Wolski used were similar and compatible with one another,” without evidentiary support (DI, 40); and (5) there were several modifications a POSA would allegedly “try” to arrive at the claimed properties. DI, 41.

The panel in turn *disregards* Dr. Randall’s *own concessions* that the three specific, claimed variables “*may not be independent from one another, or tunable independently.*” EX1003 ¶77; DI, 42 (emphasis added). According to the panel, Dr. Randall also “candidly acknowledges” that “a change intended to modify TC(220) *might have a secondary effect of changing* Rz and/or Ra.” EX1003 ¶77 (emphasis added); DI, 42. Nonetheless, the panel credits Dr. Randall’s unsupported assertion that “simultaneous optimization of these variables” “would have been common.” EX1003 ¶78; DI, 42.

This is pure hindsight unsupported by Petitioner’s references. POPR, 24-25. Instead of properly evaluating Dr. Randall’s hindsight as impermissible, the panel characterizes it as rebuttal to a “potential argument that the POSA would have been unable to simultaneously optimize three parameters[.]” DI, 42. But relying solely on the ’706 patent for support that a POSA would have arrived at its own claims is classic impermissible hindsight that should be rejected. *See, e.g., Kingston Tech. Co., Inc. v. North Star Innovations, Inc.*, IPR2018-01784, Paper 32 at 55 (PTAB Feb. 26, 2020) (rejecting petitioner’s arguments “rest[ing] on hindsight” and

“us[ing] the challenged patent as a roadmap[.]”); *Intel Corp. v. VLSI Tech. LLC*, IPR2018-01033, Paper 32 at 88-89 (PTAB Feb. 6, 2020) (similar); POPR, 24.

The panel relied *solely on Dr. Randall’s unsupported testimony* that his proposed modifications would require only ordinary skill. DI, 43 (citing only EX1003, ¶¶69, 75, 78). But this underscores the Ground’s weakness, not its purported strength, and fails to show a reasonable expectation of success. POPR, 26. “[T]o have a reasonable expectation of success, one must be motivated to do more than merely to vary all parameters or try each of numerous possible choices until one possibly arrived at a successful result, where the prior art gave either no indication of which parameters were critical or no direction as to which of many possible choices is likely to be successful.” *Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (cleaned up).

b. Petitioner’s art shows unpredictability, left unaddressed by the panel.

The panel errs in overlooking PO’s showing that the cited references *themselves* highlight the unpredictability and difficulty in controlling surface characteristics during electroplating, thereby showing nonobviousness. Instead, the panel credits Dr. Randall’s conclusory testimony related to alleged combination rationale, expected success, and serial modifications. DI, 35-36. This is improper, at least because Petitioner’s references exemplify that various independent process parameters and conditions can have significant and potentially unexpected effects

on different surface properties. POPR, 26-27. For example, Cheng (Ground 1A for the texture coefficient) explains that “addition of acid-denatured polyvinyl alcohol ... to the copper sulfate electrolyte leads to unexpected results.” EX1007, 4:4-9; POPR, 27. Similarly, Chou (Ground 2A for the texture coefficient) explains that “addition of thiourea at a concentration of from 0.1 to 2.5 ppm to the copper sulfate electrolyte is found to bring an unexpected effect.” EX1016, ¶33; POPR, 27.

The panel also errs in concluding that “Patent Owner does not further elaborate on why Petitioner’s articulated motivation is insufficient.” DI, 37. PO specifically pointed out Petitioner makes no comparison of surface characteristics in each reference in the three-reference combinations. POPR, 23-24. Petitioner also failed to explain why physical surface characteristics from one reference would be compatible with physical surface characteristics from another reference (notwithstanding any similarity between process conditions), especially in view of the unpredictability acknowledged by the references themselves. *Id.* That there is allegedly some overlap in the process conditions alone *does not support* that surface characteristics of foils from the three different references could be predictably combined with a reasonable expectation of success. *Id.* The panel does not address this disconnect, and credits Dr. Randall’s testimony that such features were result effective variables. DI, 39 (citing EX1003, ¶¶ 66–68, 71–74). These are *exactly the same types of issues* that the panel in related IPR2024-01460, -01461, and -01462

refused to credit. *See infra*.

Dr. Randall recognizes, but never reconciles, the extensive variability and uncertainties with many of the technical processes and parameters associated with the technology at issue. Dr. Randall acknowledges, for example, Cheng discloses varying at least *six specific and technical* process parameters and conditions including concentrations, compositions, temperatures, currents, and amounts. EX1003, ¶¶69-70; POPR, 23. Similarly, Dr. Randall notes Wolski discloses varying at least *eight specific and technical* process parameters and conditions, including different parameters than Cheng. EX1003, ¶75; POPR, 23. Dr. Randall does *not* explain how a POSA would have adjusted any of these conditions to arrive at a foil with the claimed physical surface characteristics (TC, $|\Delta(Rz/Ra)|$, and $|\Delta PD|$) nor how values from three different references are compatible and/or could have been independently tuned to obtain the claimed ranges (absent impermissible hindsight). POPR, 23-24. None of the references ties these surface characteristic variables together, or sufficiently explains their effect—rather, the art describes myriad process parameters and conditions that vary. Petitioner’s and Dr. Randall’s silence addressing the interrelationship and how they impact reasonable expectation of success in the combination compels denial of the Petition. *Juniper Networks, Inc. v. Correct Transmission, LLC*, IPR2021-00682, Paper 26 at 24 (P.T.A.B Oct. 3, 2022) (“Petitioner does not explain sufficiently *why* such contentions (and any underlying

cited evidence), even if undisputed, show that the skilled artisan would have had a reasonable expectation of success”).

c. Ground 1A suffers the same types of defects as related, previously denied, IPRs using the same expert.

In related IPRs, another panel repeatedly criticized Dr. Randall’s testimony and Petitioner’s reliance thereon. For example, in using its discretion to deny related IPR2024-01460 (Paper 14), that panel found:

- “[G]iven the evidence provided by Patent Owner and Petitioner’s heavy reliance on declarant testimony as opposed to express disclosures in prior art patents or publications, we find the merits challenge based on” assumptions of Dr. Randall is a “close[] call,” not warranting institution. *Solus Advanced Materials Co., Ltd. v. SK nexilis Co., Ltd.*, IPR2024-01460, Paper 14 at 25 (PTAB Apr. 22, 2025).
- “Petitioner must take multiple inferential steps to arrive at [a] conclusion” that Rpc is a result-effective variable (*id.* at 26); and it does not present a “particularly strong” case on the merits. *Id.* at 27.
- “Dr. Randall again provides no persuasive explanation or documentary support for” a conclusion where PO provided evidence that the same parameter can deviate significantly. *Id.* at 23.
- Petitioner and Dr. Randall do not persuasively explain why “an incidental, unexamined finding” would lead a POSA to import one reference’s Rpc value

into the foil of another, “absent a hindsight desire to reconstruct the claimed invention.” *Id.* at 29.

- Petitioner’s attempt to overcome deficiencies in express disclosures “requires numerous estimations, assumptions, and unsupported conclusions,” on Dr. Randall’s part. *Id.* at 23.

Similar conclusions were reached by the panel denying IPR2024-01461 (Paper 14) on the merits, where that panel found that:

- “Dr. Randall does not provide adequate explanation or objective evidence to support his opinion” that a reference’s use of different conditions is unlikely to significantly impact two different claimed parameter values. *Solus Advanced Materials Co., Ltd. v. SK nexilis Co., Ltd.*, IPR2024-01461, Paper 14 at 17, 19, 20 (PTAB Apr. 22, 2025).
- “Dr. Randall neither explains what constitutes a ‘significant’ impact on [the claimed parameter], nor provides objective evidence to support his contention that equipment variations and heating differences would not ‘significantly alter’ the resulting measurements.” *Id.* at 17.
- Petitioner’s arguments based “solely on Dr. Randall’s testimony that [the reference’s] measurement method would produce results that would not significantly differ from results determined using the claimed method,” were not persuasive. *Id.* at 17.

- “Dr. Randall’s testimony...is largely conclusory and unsupported by adequate explanation and/or objective evidence.” *Id.*
- “Dr. Randall fails to point us to any evidence showing that these [process conditions] are ‘typical’ or that the claimed heating rate is ‘common.’” *Id.* at 17, 20.

Similarly, IPR2024-01462 was denied institution on the merits in view of conclusory testimony (from a different expert) regarding motivation to combine and reasonable expectation of success. *See Solus Advanced Materials Co., Ltd. v. SK nexilis Co., Ltd.*, IPR2024-01462, Paper 14 at 13, 17, 18, 21 (PTAB Apr. 25, 2025).

This case suffers from the *same* type of testimonial defects as the three related, denied IPRs. Section II.A.2.a. And even *this* panel recognizes *additional* inaccuracies of Dr. Randall’s testimony in making initial findings favorable to PO for Ground 2A. Section II.A.1. To institute trial on a single, tenuous ground based on expert testimony contradicted by the references is not only inconsistent with the treatment of the same expert in related IPRs, but would also waste the parties’ and the panel’s time and resources.

d. Institution is at odds with the Director’s recent policy statements.

“The extent of the petition’s reliance on expert testimony” is a factor in assessing discretionary denial. March 26th Memo. Moreover, “as a matter of efficiency, extensive reliance on expert testimony and/or reasonable disputes

between experts on dispositive issues may suggest that the questions are better resolved in an Article III court.” FAQs for Interim Processes for PTAB Workload Management (“Interim Processes FAQ”), FAQ 21. As illustrated above, this case presents the same concerns recently highlighted by the Director’s policy guidance. Particularly, because APJs have technical and legal expertise, it should not be necessary for an expert to explain every aspect of the prior art. If so, it suggests that the Petitioner is making leaps not supported by the art, which the statute and the Federal Circuit requires petitions be based on. *Id.* Indeed, “failure to provide focused expert testimony may weigh against institution.” *Id.* Petitioner’s extensive reliance on Dr. Randall’s conclusory testimony lays bare Petitioner’s recognition that its proffered references fail to render the claims obvious. Such heavy testimonial reliance is further evidence of a weak unpatentability challenge and weighs in favor of discretionary denial.

B. Factor 4 favors denial: the panel placed too much weight on Petitioner’s Sotera stipulation, which does not establish this IPR as a true alternative to the district court proceeding.

The panel found that Factor 4 weighed against exercising discretion to deny institution. DI, 16-17. But “Petitioner’s stipulation does not ensure that th[is] IPR proceeding[] would be a ‘true alternative’ to the district court proceeding,” and should not outweigh the other factors. *Motorola Solutions, Inc. v. Stellar, LLC*, IPR2024-01205, Paper 19 at 2-4 (PTAB Mar. 28, 2025). Not having Factor 4

outweigh the other factors would be consistent with the Board’s treatment of related IPR2024-01460. *Solus Advanced Materials Co., Ltd.*, IPR2024-01460, Paper 14 at 31-32; *Cisco Sys., Inc. v. Estech Sys., Inc.*, IPR2021-00333, Paper 12 at 12-13 (PTAB July 7, 2021) (denying institution with *Sotera* stipulation, noting in *Sotera* the trial date factor was neutral and the investment factor weighed against denial).

The Director will also consider “whether [a] stipulation materially reduces overlap between the proceedings.” Interim Processes FAQ 14. And “where the petitioner is relying on corresponding system art in a co-pending proceeding” (as Petitioner is here) “and/or several other invalidity theories” (as Petitioner is here), “a stipulation may not be particularly meaningful because the efficiency gained by any AIA proceeding will be limited.” *Id.*; EX2010. Even a stronger stipulation (e.g., the one currently in related case IPR2025-00005) is not dispositive. Factor 4 thus favors discretionary denial, or at least should not override the other factors.

C. Factor 3 favors denial: the parties have made significant investments in the district court and Petitioner was not diligent filing its Petition.

The panel here found Factor 3 was neutral because “investment in the Related Litigation has been modest.” DI, 15. But claim construction briefing is complete, fact discovery is scheduled to be completed June 4, 2025, and opening expert reports are due June 11, 2025. EX2005, 4. Indeed, the *Markman* hearing is scheduled for next week, May 14, 2025. *Id.* Such investment is significant, yet the panel determined that additional effort “appears to lie ahead.” DI, 15. Regardless of the

effort remaining, the parties have *already* invested substantial time and resources in district court. *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 15 at 14 (PTAB May 13, 2020) (“*Fintiv IP*”) (finding Factor 3 “weighs somewhat in favor of discretionary denial” when the parties exchanged both “infringement and invalidity contentions, including detailed invalidity claim charts addressing the prior art” in the petition).

The panel also found that “Petitioner’s diligence in filing its Petition weighs neither for nor against exercising [] discretion” to deny IPR. DI, 15. But the ’706 patent was asserted in the *original complaint filed ten months before the Petition*, without any sufficient articulation of diligence on Petitioner’s part. POPR, 14; EX2007. Accordingly, Factor 3 weighs in favor of discretionary denial.

III. JUDICIAL EFFICIENCY REQUIRES CONSOLIDATION IN THE DISTRICT COURT IN VIEW OF AT LEAST THREE RELATED IPRS BEING DENIED.

The Board has already denied three other related IPRs (IPR2024-01460, -01461, and -01462), each challenging a different patent at issue in the same co-pending district court litigation. Denial here would consolidate the issues before the same factfinder and allow for resolution of the parties’ disputes in a common forum. And denial of institution would allow this panel to address other, more meritorious *inter partes* challenges, and/or refocus efforts on reducing the backlog of *ex parte* appeals in prosecution. Common sense dictates that the district court should resolve the remaining disputes in their totality, and this IPR should be denied.

Respectfully submitted,

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

I certify that the above-captioned **PATENT OWNER SK NEXILIS CO., LTD.'S REQUEST FOR DIRECTOR REVIEW OF THE DECISION GRANTING INSTITUTION OF *INTER PARTES* REVIEW** was served in its entirety on May 9, 2025, upon the following parties via electronic mail:

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