

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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CYTEK BIOSCIENCES, INC.,  
Petitioner

v.

BECKMAN COULTER, INC.  
Patent Owner

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Case No. PGR2025-00084  
U.S. Patent No. 12,174,106 B2  
Issue Date: December 24, 2024

Title: FLOW CYTOMETER

**PETITIONER'S OPPOSITION TO PATENT OWNER'S REQUEST FOR  
DISCRETIONARY DENIAL**

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<b>1001</b>	U.S. Patent No. 12,174,106 B2 to Yong Qin Chen (filed December 22, 2021, issued December 24, 2024) (“ <b>106 patent</b> ”)
<b>1002</b>	Declaration of Fedor A. Ilkov, Ph.D.
<b>1003</b>	Prosecution History of U.S. Patent No. 12,174,106 B2
<b>1004</b>	Nigel P. Carter and Michael G. Ormerod, <i>Chapter 1, Introduction to the Principles of flow cytometry</i> , Flow Cytometry, pp. 1-22 (3rd ed. 2000)
<b>1005</b>	U.S. Patent No. 6,683,314 B2 to Clifford A. Oostman, Jr. et al. (filed August 28, 2001; published January 27, 2004) (“ <b>Oostman</b> ”)
<b>1006</b>	U.S. Patent No. 5,317,162 to Bertram G. Pinsky et al. (filed September 9, 1992; published May 31, 1994) (“ <b>Pinsky</b> ”)
<b>1007</b>	Excerpts of Howard M. Shapiro, <i>Practical Flow Cytometry</i> (4th ed. 2003) (“ <b>Shapiro</b> ”)
<b>1008</b>	World Patent No. WO 2010/101623 A1 to Michael Thomas (filed March 2, 2010; published September 10, 2010) (“ <b>Thomas</b> ”)
<b>1009</b>	U.S. Patent No. 8,284,402 B2 to Erich Frazier et al. (filed February 26, 2010; published October 9, 2012) (“ <b>Frazier</b> ”)
<b>1010</b>	U.S. Patent No. 4,244,045 to Kiyoshi Nosu et al. (filed January 31, 1979; published January 6, 1981) (“ <b>Nosu</b> ”)
<b>1011</b>	U.S. Patent No. 8,537,468 B1 to Xuan Wang et al. (filed June 10, 2011; published September 17, 2013) (“ <b>Wang</b> ”)
<b>1012</b>	U.S. Patent No. 6,198,864 B1 to Brian E. Lemoff et al. (filed November 24, 1998; published March 6, 2001) (“ <b>Lemoff</b> ”)
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<b>Exhibit No.</b>	<b>Description of Document</b>
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<b>1015</b>	U.S. Patent No. 6,201,908 B1 to Eric B. Grann (filed July 2, 1999; published March 13, 2001) (“ <b>Grann</b> ”)
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<b>1021</b>	<i>Reserved</i>
<b>1022</b>	<i>Reserved</i>
<b>1023</b>	Steve Wasserman, <i>Geometrical optics and ray tracing</i> , Course Wiki (August 27, 2019)
<b>1024</b>	<i>Reserved</i>
<b>1025</b>	Complaint filed in <i>Beckman Coulter, Inc. v. Cytek Biosciences, Inc.</i> , C.A. No. 1:24-cv-00945 (D. Del. Aug. 14, 2024), D.I. 1
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<b>1028</b>	<i>Reserved</i>
<b>1029</b>	<i>Reserved</i>
<b>1030</b>	Rochelle A. Diamond, <i>Chapter 8: Quality Control Guidelines for Research Flow Cytometry</i> , In <i>Living Color</i> , pp. 98-105 (2000)
<b>1031</b>	R.M.P. Doornbos et al., <i>White Blood Cell Differentiation Using a Solid State Flow Cytometer</i> , <i>Cytometry</i> 14:589-594 (1993) (“ <b>Doornbos</b> ”)
<b>1032</b>	SensL SPMMini High Gain APD (Oct. 2007)
<b>1033</b>	Menlo Systems APD210/310 High Sensitivity Detector Unit (Apr. 2021)
<b>1034</b>	Thorlabs.com – High-Sensitivity Avalanche Photodetectors website Overview, Specs and Documents & Drawings, (Aug. 31, 2011), <a href="https://web.archive.org/web/20110831115024/http://www.thorlabs.com/NewGroupPage9.cfm?ObjectGroup_ID=947">https://web.archive.org/web/20110831115024/http://www.thorlabs.com/NewGroupPage9.cfm?ObjectGroup_ID=947</a>
<b>1035</b>	World Patent No. WO 94/29695 to Oddbjørn Gjelsnes (filed June 8, 1993; published December 22, 1994) (“ <b>Gjelsnes</b> ”)
<b>1036</b>	Carleton C. Stewart et al., <i>Flow Cytometer in the Infrared: Inexpensive Modifications to a Commercial Instrument</i> , <i>Cytometry Part A</i> , 67A:104-111 (2005) (“ <b>Stewart</b> ”)
<b>1037</b>	William G. Lawrence et al., <i>A 16-channel avalanche photodiode detector array for visible and near-infrared flow cytometry</i> , <i>Imaging</i> ,

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	Manipulation, and Analysis of Biomolecules, Cells, and Tissues IV, Proc. of SPIE, Vol. 6088, 60880T, (2006) (“ <b>Lawrence</b> ”)
<b>1038</b>	William G. Lawrence et al., <i>A Comparison of Avalanche Photodiode and Photomultiplier Tube Detectors for Flow Cytometry</i> , Imaging, Manipulation, and Analysis of Biomolecules, Cells, and Tissues VI, Proc. of SPIE Vol. 6859, 68590M, (2008) (“ <b>Lawrence 2008</b> ”)
<b>1039</b>	Shutao Zhao et al., <i>High gain avalanche photodiode (APD) arrays in flow cytometer optical [sic] system</i> , IEEE (2011) (“ <b>Zhao</b> ”)
<b>1040</b>	U.S. Patent No. 8,188,438 B2 to Dongqing Li (filed Mar. 8, 2010; published May 29, 2012) (“ <b>Li-438</b> ”)
<b>1041</b>	Canadian Patent No. 2 771 324 to Paul Patt (filed Aug. 20, 2010; published June 21, 2016) (“ <b>Patt-324</b> ”)
<b>1042</b>	U.S. Patent No. 7,580,120 B2 to Yuichi Hamada et al. (filed Apr. 6, 2006; published Aug. 25, 2009) (“ <b>Hamada</b> ”)
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<b>1045</b>	U.S. Patent No. 7,505,131 B2 to Wayne D. Roth (filed Mar. 6, 2008; published Mar. 17, 2009) (“ <b>Roth-131</b> ”)
<b>1046</b>	U.S. Patent Application Publication No. 2008/0305481 A1 to Douglas F. Whitman et al. (filed Dec. 13, 2007; published Dec. 11, 2008) (“ <b>Whitman</b> ”)
<b>1047</b>	U.S. Patent Application Publication No. 2007/0269345 A1 to Adam Richard Schilffarth et al. (filed May 17, 2007; published Nov. 22, 2007) (“ <b>Schilffarth-345</b> ”)

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<b>1049</b>	U.S. Patent Application Publication No. 2009/0071225 A1 to Adam Richard Schilffarth (filed Sept. 17, 2008; published Mar. 19, 2009) (“ <b>Schilffarth-225</b> ”)
<b>1050</b>	U.S. Patent Application Publication No. 2009/0237658 A1 to Edward Calvin et al. (filed Apr. 9, 2009; published Sept. 24, 2009) (“ <b>Calvin</b> ”)
<b>1051</b>	U.S. Patent No. 6,139,800 to Van S. Chandler (filed June 22, 1998; published October 31, 2000) (“ <b>Chandler</b> ”)
<b>1052</b>	Luminex 100™ IS User Manual Version 2.3 (Oct. 2005)
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<b>1054</b>	BD Biosciences Immunocytometry Systems Technical Specifications BD FACSAArray (Oct. 2003)
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<b>1073</b>	Michael W. Davidson, Molecular Expressions, Optical Microscopy Primer, Physics of Light and Color, Florida State University (Nov. 13, 2015), <a href="https://micro.magnet.fsu.edu/primer/lightandcolor/mirrorsintro.html">https://micro.magnet.fsu.edu/primer/lightandcolor/mirrorsintro.html</a>
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<b>1076</b>	Prosecution history of EP24151670
<b>1077</b>	Optics: Concave and Convex Mirrors and Lenses, ScienceReady (2025), <a href="https://scienceready.com.au/pages/mirrors-and-lenses">https://scienceready.com.au/pages/mirrors-and-lenses</a>
<b>1078</b>	U.S. Patent No. 11,255,772 B2 to Yong Qin Chen (filed June 30, 2017; published Feb. 22, 2022) (“ <b>772</b> ”)
<b>1079</b>	Definition of quantitate from Concise Oxford English Dictionary (12th ed. 2011)
<b>1080</b>	M. Salvato et al., <i>Time response in carbon nanotube/Si based photodetectors</i> , Sensors and Actuators A292: 71-76 (2019)
<b>1081</b>	Declaration of Dr. David Schaafsma, Ph.D. in Support of Beckman Coulter’s Opening Claim Construction Brief, dated June 5, 2025, filed in <i>Beckman Coulter, Inc. v. Cytek Biosciences, Inc.</i> , C.A. No. 1:24-cv-00945 (D. Del. July 27, 2025)
<b>1082</b>	Xiaolu Xia et al., <i>Emerging optoelectronic architectures in carbon nanotube photodetector technologies</i> , Fundamental Research, 5:1153-1168 (available online in 2023, in print in 2025)
<b>1083</b>	Xiang Cai et al., <i>Recent progress of photodetector based on carbon nanotube film and application in optoelectronic integration</i> , Nano Research Energy 2:e9120058:1-18 (2023)
<b>1084</b>	Yue Wang et al., <i>Advancement in Carbon Nanotubes Optoelectronic Devices for Terahertz and Infrared Applications</i> , Advanced Electronic Materials, 10:2400124:1-31 (2024)
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<b>1105</b>	<i>Reserved</i>

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<b>1107</b>	<i>Reserved</i>
<b>1108</b>	Excerpts of the Prosecution history of U.S. Patent No. 9,746,412
<b>1109</b>	Cytek Biosciences Debuts New Advanced Flow Cytometry System, (June 7, 2017), <a href="https://cytekbio.com/blogs/news/cytek-biosciences-debuts-newadvanced-flow-cytometry-system">https://cytekbio.com/blogs/news/cytek-biosciences-debuts-newadvanced-flow-cytometry-system</a>
<b>1110</b>	Specification of U.S. Patent Application No. 61/653,328
<b>1111</b>	Specification of U.S. Patent Application No. 61/911,859

## **I. INTRODUCTION**

Patent Owner’s Request for Discretionary Denial in the above-captioned post-grant review (“PGR”) of U.S. Patent No. 12,174,106 B2 (“’106 patent” or “EX1001”) fails at every threshold. The ’106 patent is PGR-eligible because— notwithstanding a reexamination involving a different patent—the PTO has never addressed the independent § 112 failure for the “semiconductor detector” limitation, which alone defeats pre-AIA priority. Denial under § 325(d) is likewise improper because the Petition relies on prior art combinations and motivations never substantively considered during prosecution, which the Examiner erred in overlooking. The *Fintiv* factors also disfavor discretionary denial, particularly given Patent Owner’s unilateral removal of the ’106 patent from the district court litigation. Institution is further warranted in light of Patent Owner’s prosecution gamesmanship and Petitioner’s settled expectations because the accused system not only predates the issuance date of earliest asserted patent in the litigation, but the ’106 patent issued *after* litigation commenced. Denying institution on any of these grounds—or by treating this PGR as a carbon copy of the *inter partes* review (“IPR”) of U.S. Patent No. 11,703,443 (“’443 patent”)—would improperly shield a newly issued patent from the very scrutiny Congress intended PGR proceedings to provide.

## **II. THE ’106 PATENT IS PGR-ELIGIBLE**

Patent Owner’s PGR-ineligibility arguments mistakenly rely on the USPTO’s

denial of a reexamination request for the related '582 patent, which found that pre-AIA priority applications supported the “curved mirror” limitation. (Paper 6 (“Mot.”) at 10.) A patent is PGR-eligible if *even one* of its challenged claims is not entitled to a pre-AIA priority date. *See Tricam Indus., Inc. v. Little Giant Ladder Sys., LLC*, PGR2021-00044, Paper 10 at 15 (PTAB Aug. 3, 2021) (“Thus, for a patent issuing from a transition application, eligibility for post-grant review depends on whether the Petition shows that the patent contains or contained at any time a claim that lacks written description and enabling support in a priority application filed before March 16, 2013.”). Such is the case here.

Here, the Petition presents two independent § 112 defects affecting the '106 patent's PGR-eligibility: one involving the “curved mirror” limitation (which the USPTO previously considered in the '582 reexamination), and another involving the “semiconductor detector” limitation (which the USPTO has never considered). (Pet. at 79-85.) Even accepting, *arguendo*,<sup>1</sup> the '582 reexamination's conclusion

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<sup>1</sup> To be clear, Petitioner disputes Patent Owner's position that the '582 reexamination's decision concerning “curved mirror” controls the outcome here. (Mot. at 10-11.) This case involves a different patent and different claims, so whatever the PTAB decided concerning the '582 patent does not necessarily port

regarding “curved mirror,” the ’106 patent is still PGR-eligible because its pre-AIA priority applications fail to support the full scope of the “semiconductor detector” limitation, which includes carbon nanotube detectors. (Pet. at 80-85.) Patent Owner fails to persuasively rebut this unresolved § 112 defect. Patent Owner’s assertion that the priority applications mention “semiconductor photodetectors” misses the point. (Mot. at 11 (citing the ’5819 Prov (EX2043)).) Boilerplate references to generic “semiconductor detectors” do not demonstrate possession of, or enablement for, “carbon nanotube detectors,” particularly where such detectors were commercially unavailable and outside a POSA’s general knowledge at the relevant time. (Pet. at 79-85.)

Moreover, Patent Owner’s attempt to cabin PGR eligibility to these two limitations is misplaced. Certain challenged claims further require that the “collecting optical element” be “configured to collect and focus *side-scatter* light.” (EX1001, cls. 9, 20.) While certain pre-AIA priority applications describe optical components capable of collecting fluorescent or scattered light generally (*see, e.g.*, E1109, pp.007-008, ¶17), the first disclosure expressly addressing side-scatter detection appears in provisional application No. 61/911,859, filed December 4, 2013

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over to the ’106 patent. The ’582 reexamination’s decision is also non-precedential, thereby rendering it non-binding on the PTAB.

(EX1111, 83:1-13). Because PGR eligibility turns on whether *any* challenged claim is entitled to a pre-AIA priority date—not on whether Patent Owner can defend select limitations in isolation—at least the ’106 patent claims reciting collection and focusing of side-scatter light are not entitled to a pre-AIA priority date. *See Tricam*, PGR2021-00044, Paper 10 at 15.

Patent Owner’s reliance on efficiency and consistency principles is likewise misplaced. (Mot. at 12.) The ’582 reexamination decision is non-precedential, concerns a different patent/claims, and never addressed the carbon-nanotube issue presented here. Instituting the PGR would, therefore, not create inconsistent outcomes; it would be the first and only PTO review of a dispositive § 112 defect in a newly issued patent. Denying review would, instead, shield that defect from scrutiny, contrary to the purpose of PGR.

### **III. DISCRETIONARY DENIAL UNDER § 325(D) IS UNWARRANTED**

#### **A. *Advanced Bionics* Step 1 Is Unmet Because the Petition Raises Art and Arguments Not Previously Considered by the Office**

Because the Petition raises novel and non-cumulative art and arguments that were never presented to the Examiner, denial under § 325(d) is inappropriate under *Advanced Bionics* Step 1. *Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH*, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (“*Advanced Bionics*”) (precedential).

**1. The Examiner Did Not Consider the Petition’s Asserted References During Prosecution of the ’106 Patent**

*Becton Dickinson* factors (a) and (c) weigh against discretionary denial, given the absence of any substantive evaluation during prosecution of the asserted combination of references in Grounds 1. *Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17-18 (PTAB Dec. 15, 2017) (precedential as to § III.C.5, first paragraph) (“*Becton, Dickinson*”)

Regarding Ground 1, “because [Chandler] was not presented in combination with the other references asserted here...the combination of references asserted in the Petition do not qualify as art that was ‘previously presented’ to the Office.” *Samsung Elecs. Co. v. Netlist, Inc.*, IPR2022-00063, Paper 13 at 13-14 (PTAB May 5, 2022). Here, Chandler was never before the Examiner during prosecution and was never cited on the face of the ’106 patent. (See EX1001, pp.001-004; see also EX1003 (no mention of Chandler in the prosecution history).) Patent Owner does not dispute this fact. (See generally Mot. at 19.) Thus, the asserted Ground 1 combination that includes Chandler fails *Advanced Bionics* step one, and the Board need not proceed to *Advanced Bionics* step two.<sup>2</sup>

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<sup>2</sup> To the extent the Office considers Goodman and Frazier to satisfy *Advanced Bionics* step one because Patent Owner cited these references in an IDS containing

**2. Chandler Is Not Cumulative of Any Reference Considered During Prosecution of the '106 Patent**

*Becton, Dickinson* factor (b) also weighs against discretionary denial because Chandler is not cumulative of Roth-131 or Frazier.

Patent Owner's sole theory of cumulateness is that Chandler, Roth-131, and Frazier mention avalanche photodiodes ("APDs"). (*See Mot.* at 19 & n.3.) But the Board has repeatedly held that overlap in general subject matter is insufficient to establish cumulateness under *Becton, Dickinson* factor (b); rather, § 325(d) requires a fact-specific comparison of the structure and purpose of the references. *See Oticon Med. AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 15-16 (PTAB Oct. 16, 2019) ("Choi is not cumulative over Härle because Choi's circumferential groove and Härle's circumferential groove are different structures that serve different purposes.").

Here, the Petition relies on Chandler not just for the presence of APDs, but for its disclosure of a filtering, amplification, and digital conversion unit ("FADC"), which encompasses—but is not limited to—APDs. (Pet. at 24 (citing EX1051, 4:62-5:4, 5:23-33, 7:24-45, FIG. 4).) Notably, Chandler's APDs are structurally integrated

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hundreds of other references (*see* EX1003, pp.231, 234) which the Examiner stated received "only the most cursory" review, as discussed further below in Section III.B, the combination presented in Ground 2 still fails *Advanced Bionics* step two.

into an FADC unit, arranged in a circular configuration. (EX1051, FIG. 4; *id.*, 7:46-54 (“Each FADC unit 30, 32, 34, 36 has a respective set of ... standard photo-detectors 60, 62, 64[.]”).) Roth-131 and Frazier, by contrast, disclose APDs as standalone detectors arranged in linear fashion. (*See* EX1045, FIG. 1, FIG. 2; *id.*, 7:52-8:14, 11:53-67; *see also* EX1009, FIG. 1.) Chandler’s APDs are also designed to *amplify* detected signals, whereas Roth-131’s APDs merely *generate* signals representing fluorescence intensity. (EX1051, 8:34-36; EX1045, 7:60-63, 8:4-6.) Thus, as in *Oticon*, where superficially similar components served different structural and functional roles, these differences preclude a finding that Chandler is cumulative. *See Oticon*, IPR2019-00975, Paper 15 at 15.

Patent Owner’s other arguments that Chandler is cumulative of Roth-131 similarly fail. Despite Patent Owner’s contrary position (Mot. at 19), common Luminex assignment does not factor into the *Advanced Bionics* step one framework. *Geotab USA, Inc. v. Omega Pats., LLC*, IPR2023-00504, Paper 11 at 16 (PTAB July 25, 2023) (“[W]e are not persuaded that common inventorship and common technology—standing alone—satisfy the ‘substantially the same art’ test of the *Advanced Bionics* two-part framework.”). Nor does Dr. Ilkov’s statement that Roth-131 is “embodied in” certain Luminex products (Mot. at 19)—both because Patent Owner cites no authority holding that an expert’s testimony may substitute for the *Oticon*-style comparison described *supra* and because a commercial embodiment

does not necessarily equate Roth-131 to Chandler. Patent Owner also cites no authority that the '106 specification's general reference to Luminex systems is tantamount to prior art review, so this argument also fails. (Mot. at 19.)

Finally, Patent Owner's reliance on the Board's prior § 112 findings in the '582 reexamination context is misplaced. Although the Board has, in limited circumstances, considered non-prior art invalidity grounds under Section 325(d), *Advanced Bionics* step one still requires that the same statutory issue—directed to the same claim scope in the same patent—have been previously presented to the Office. *See Beigene USA, Inc. v. Pharmacyclics LLC*, PGR2024-00009, 2024 WL 1915139, at \*17-18 (PTAB May 1, 2024) (declining discretionary denial where the Examiner had not been presented with the same written description arguments raised in the petition). Here, the '582 reexamination involved a different patent and different claims and therefore did not address whether the “curved mirror” limitation satisfies § 112 for purposes of preserving pre-AIA priority for the '106 patent. Because the Office has never substantively addressed this issue regarding the '106 patent, Patent Owner fails to meet *Advanced Bionics* step one.

**B. *Advanced Bionics* Step 2 Is Unmet & § 325(d) Denial Is Inappropriate Due to Examiner Error & Patent Owner's Actions**

Although the Director need not reach the second prong of the *Advanced Bionics* framework because the combination of references asserted in Ground 1 was never presented to the Examiner and does not satisfy *Advanced Bionics* step one, it

too does not support discretionary denial under § 325(d). The Examiner materially erred by overlooking (or misapprehending) the teachings of Chandler-based combination and the Oostman-Goodman-Frazier combination and by not rejecting the claims as obvious over these references. *See Advanced Bionics*, IPR2019-01469, Paper 6 at 8 n.9 (“An example of a material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims.”), 10 (“[I]f the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive[.]”).

As discussed *supra*, Chandler was never considered during prosecution. (*See* Section III.A.) Nor was the Oostman-Goodman-Frazier combination. Chandler and the Oostman-Goodman-Frazier combination, thus, were not used as the basis for any rejection, and there is no analysis or discussion of these references’ teachings in the prosecution history. Chandler and the Oostman-Goodman-Frazier combination were overlooked, and *Becton, Dickinson* factor (c) thus weighs against the exercise of discretion under § 325(d). *See Ascend Elements, Inc. v. Duesenfeld GmbH*, IPR2024-00948, 2024 WL 4869116, at \*16 (PTAB Nov. 22, 2024) (finding that petitioner has demonstrated that the Office had materially erred where “the Office did not rely on any of the references asserted [] to reject any of the claims challenged here,” “so it appears [the asserted obviousness arguments] were overlooked”); *Aylo Freesites*

*Ltd. v. Dish Techs. L.L.C.*, IPR2024-00940, Paper 12 at 33-34 (PTAB Nov. 21, 2024) (“Neither the applicants nor the Examiner discussed these references and petitions, and the Examiner did not use any of them as a basis of any rejection. Rather, the Examiner’s only interaction with these items appears to be within the context of receiving and responding to Information Disclosure Statements.”).

As detailed in the Petition, Grounds 1 and 2 teach and render obvious every limitation of the challenged claims, including the limitations mistakenly identified by the Examiner as not present in the prior art in the Notice of Allowance. (*See* EX1003, p.527.) There, the Examiner indicated the limitation reciting “a collimating optical element that is separate from the collecting optical element and is arranged to receive the fluorescent light collected by the collecting optical element, the collimating optical element configured to collimate the fluorescent light” was the “reason[] for allowance.” (*Id.*)

Ground 1 of the Petition identifies and analyzes specific teachings from Goodman and Chandler that the Examiner overlooked and that render obvious this “a collimating optical element that is separate from ...” limitation (in combination with the other limitations). In particular, the Petition explains that Goodman’s “collimating reflector 24a” discloses the claimed “collimating optical element” that is “separate from the wavelength selective element,” even under Patent Owner’s own district court position that the term is a means-plus-function limitation satisfied

by a lens or structural equivalent. (Pet. at 41 (quoting Goodman, 10:17-21; EX1002, ¶¶130-131).) The Petition notes that Goodman expressly teaches that collimating reflector 24a may be a collimating lens and is arranged to receive fluorescent light collected by upstream optical elements and to collimate that light, thereby performing the identical functions Patent Owner attributes to the claimed “collimating optical element.” (*Id.* at 41-43.)

The Petition further explains that Chandler supplies the corresponding light-collection and routing architecture, disclosing optical detectors coupled via multimode fiber optic cables to downstream processing units, such that fluorescent light gathered at the detectors is conveyed to—and received by—the collimating structure disclosed in Goodman. (*Id.* at 41-42.) As detailed in the Petition, a POSA would have understood Goodman’s reflector 24a to receive non-collimated fluorescent light and render the rays substantially parallel, satisfying the “collimate” function under both parties’ constructions and consistent with optics principles cited in the ’106 specification itself. (*Id.* at 41-45.)

Ground 2 of the Petition further identifies and analyzes specific teachings from Oostman, Goodman, and Frazier that the Examiner overlooked and that render obvious this “a collimating optical element that is separate from ...” limitation (in combination with the other limitations). In particular, the Petition explains that Oostman’s collimating lens 203, when implemented within Goodman’s zig-zag

WDM configuration, discloses the claimed “collimating optical element” limitation under Patent Owner’s proposed construction. (*Id.* at 69-70.) Oostman’s lens 203 qualifies as a “lens,” is arranged to receive fluorescent light collected by the upstream collecting optical element, and is configured to collimate that light, satisfying the functions that Patent Owner attributes to the claimed “collimating optical element.” (*Id.*) The combination also ensures that Oostman’s lens is separate from the collecting optical element. (*Id.* at 70.)

The Petition further explains that modifying Oostman’s WDM with Goodman’s zig-zag configuration would have predictably placed the collimating lens at the proper focal distance from the output end of optical fiber 15 but before the imaging element 18, resulting in the exact functional arrangement claimed. (*Id.* at 68-69.)

Under *Becton, Dickinson* factor (e), the teachings from Grounds 1 and 2 identified above (and analyzed in greater detail in the identified patentability contentions from the Petition) demonstrate that the Examiner materially erred in the evaluation of the prior art. The Examiner overlooked (or misapprehended) these teachings from Grounds 1 and 2 when mistakenly concluding that the “a collimating optical element that is separate from ...” limitation called out in the Notice of Allowance (EX1003, p.527) was not found in the prior art. *See Aylo Freesites*, IPR2024-00940, Paper 12 at 34-35 (“It is difficult to characterize error in a nearly

silent record, and we find that Petitioner has sufficiently demonstrated error based in part on its unpatentability contentions.”).

Separately, discretionary denial under *Advanced Bionics* step two is not warranted under *Becton, Dickinson* factor (f). Patent Owner submitted an IDS spanning hundreds of references during the prosecution of the ’106 patent (EX1003, pp.152-164), after having done the same years earlier in the prosecution of U.S. Patent No. 9,746,412 (“the ’412 patent”)—the parent from which the challenged ’106 patent descends (EX1108, pp.002-011.) In that earlier prosecution, the Examiner expressly warned that, due to the unusually large number of references and lack of applicant guidance, “**only the most cursory review**” was possible unless Patent Owner identified references warranting “higher degree” consideration. (EX1108, p.046 (emphasis added).) Patent Owner never did so: not then, and not during the ’106 prosecution.

Under *Ecto World*, such circumstances fail to satisfy *Becton Dickinson* factor (f) because they directly undermine any inference that the Examiner meaningfully considered Goodman or Frazier merely because they appear on the ’106 patent application’s IDS. *Ecto World, LLC v. Rai Strategic Holdings, Inc.*, IPR2024-01280, Paper 13 at 6–7 (Dir. Dec. May 19, 2025). Absent any meaningful consideration of Goodman or Frazier, the Petition presents “additional evidence and facts [that] warrant reconsideration of the prior art or arguments.” *Becton, Dickinson*, IPR2017-

01586, Paper 8 at 18.

Dr. Ilkov's expert declaration provides an independent reason why, under *Becton Dickinson* factor (f), the Board should reconsider whether the asserted prior art renders the '106 patent's claims obvious. Under *BMW v. Foras*, new prior art combinations and expert support weigh strongly against § 325(d) denial. *BMW of N. Am., LLC v. Foras Techs., Ltd.*, IPR2024-01346, Paper 7 at 20-21 (PTAB Mar. 7, 2025) (refusing to exercise § 325(d) discretion to deny institution when petitioner raised additional combinations that were not before the Examiner and expert testimony supporting the obviousness combination). And under *Therabody*, the presence of expert analysis unavailable during prosecution further reinforces that institution is appropriate. *Therabody, Inc. v. Hyperice IP Subco, LLC*, PGR2024-00053, Paper 8 at 10-11 (PTAB Apr. 21, 2025) (finding "factor (f) weigh[ed] against exercising discretion to deny institution under § 325(d)" in light of expert declaration); *see also Sci. Design Co. v. Shell Oil Co.*, IPR2021-01537, Paper 7 at 25 (PTAB Mar. 18, 2022) ("Based on the strength of Petitioner's challenges, we find that Petitioner sufficiently demonstrates that the Examiner erred in overlooking the relevant disclosures of the cited references.").

The Examiner thus erred under *Advanced Bionics* step two because he never evaluated the asserted art or the Petition's prior art combinations, overlooked material teachings in the asserted references, as discussed above, and was impeded

by Patent Owner's own mega-IDS filings. The Board should not exercise discretion to deny institution under § 325(d) because the Petition's new prior art combinations and expert evidence warrant reconsideration.

#### **IV. DISCRETIONARY DENIAL UNDER *FINTIV* IS UNWARRANTED**

As discussed further below, because the '106 patent is no longer asserted in the parallel district court litigation, all six *Fintiv* factors weigh in favor of institution.

***Fintiv* factors 1-5 collectively weigh strongly against discretionary denial because there is no parallel district court proceeding involving the '106 patent.**

*Fintiv* factors one through five are directed to assessing whether institution would result in inefficient duplication of effort with a parallel district court action. *See Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 6 (PTAB Mar. 20, 2020).

Where, as here, there is no parallel district court proceeding involving the challenged patent, these factors uniformly weigh against discretionary denial.

***Fintiv* factors 1, 2, 4, and 5** weigh strongly against discretionary denial because the '106 patent is no longer part of any district court litigation, leaving nothing to stay, no trial schedule to consider, no overlap of issues, and no parallel parties litigating the same patent. **Factor 3** likewise weighs strongly against discretionary denial; to the extent any district court resources were expended on the '106 patent, that investment was rendered moot by Patent Owner's voluntary withdrawal of the '106 patent after a year of litigation.

***Fintiv* factor 6** strongly favors institution because there is compelling evidence that the Challenged Claims are unpatentable over the Petition’s proposed obviousness combinations. (*See generally* Pet.; *see also* EX1002.) The ’106 patent expressly teaches that WDM techniques from optical communications are “readily adapted for fluorescence light detection” (EX1001, 4:60-62), defeating Patent Owner’s analogous-art argument (Mot. at 16) and confirming that Goodman is properly combined with Chandler and Oostman. Patent Owner’s contention that the Petition lacks motivation to combine is likewise incorrect (Mot. at 16), as the Petition identifies multiple independent motivations grounded in the prior art—consistent with Chandler’s stated design goals and Goodman’s express teachings regarding ease of integration, scalability, and fabrication. (Pet. at 28-30.) Nor does Oostman teach away from a zig-zag WDM configuration (Mot. at 16-17); at most, it describes alternative layouts (EX1005, 7:32-36), which is legally insufficient to negate motivation to combine. *See Santarus, Inc. v. Par Pharm., Inc.*, 694 F.3d 1344, 1356 (Fed. Cir. 2012) (“A statement that a particular combination is not a preferred embodiment does not teach away absent clear discouragement of that combination.” (citation omitted)).

Patent Owner’s assertion that the Petition “backfills gaps” through unsupported expert opinion also fails. (Mot. at 17-18.) Dr. Ilkov’s testimony is firmly anchored in the disclosures of the prior art itself and reflects predictable

engineering tradeoffs and known design alternatives, not hindsight reconstruction. (EX1002, ¶111 (citing EX1051, Chandler, 7:1-6, 3:51-55); *id.*, ¶113 (citing EX1016, Goodman, 3:48–67); *id.*, ¶¶115, 167.) Finally, Patent Owner’s written description and enablement rebuttals fail on their face, as its own argument that carbon nanotubes were being “generated and used ... in research laboratories” confirms that the inventors did not possess or enable the claimed semiconductor detector technology at the time of filing. (Mot. at 17.)

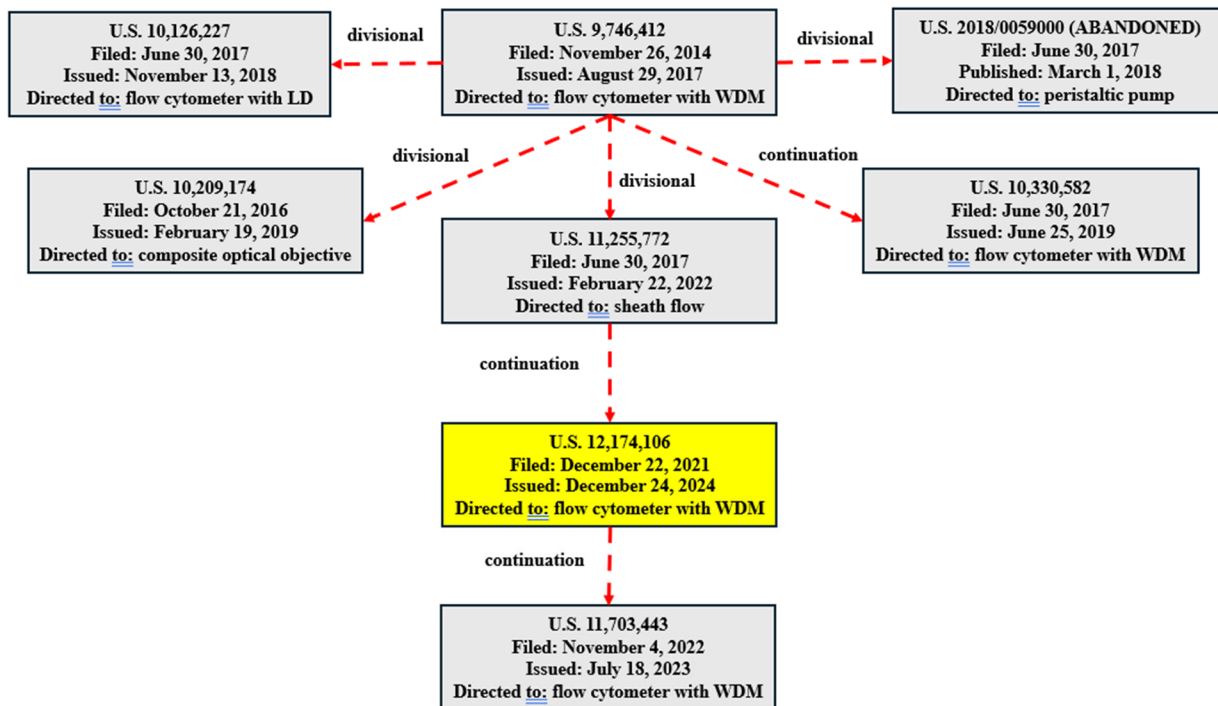
## **V. ADDITIONAL CONSIDERATIONS WARRANT INSTITUTION**

### **A. Patent Owner’s Prosecution Gamesmanship Warrants Institution**

As discussed in the ’443 patent IPR, the ’106 patent exists only because Patent Owner broke the required line of demarcation following the Examiner’s restriction requirement during prosecution of the parent ’412 patent. During the ’412 prosecution, the Examiner required restriction among five distinct inventions, including (using the Examiner’s numbering): (1) flow cytometers with wavelength-division multiplexers (“WDM”) and (3) methods of providing sheath flow. (EX1108, Restr. Req. (Apr. 20, 2016), pp.021-027.) The applicant elected the WDM group, and the ’412 patent and its continuation, the ’582 patent, properly issued in that elected WDM lineage. (EX1108, Resp. to Restr. Req. (June 3, 2016), pp.029-034.)

Patent Owner then filed divisional applications from the '412 patent to pursue the non-elected inventions, including the '772 divisional directed solely to sheath-flow methods. But instead of maintaining consonance with the restriction requirement, Patent Owner improperly filed the application that became the '106 patent on December 22, 2021 as a continuation of the '772 sheath-flow divisional, even though the '106 claims are directed to a WDM-based flow cytometer—the very subject matter already elected and prosecuted in the '412/'582 continuation chain.

This convoluted prosecution history is demonstrated by the family tree below:



This improper filing violated the strict requirement that applicants maintain “consonance” between each application and the invention groupings defined in the restriction requirement. *See St. Jude Med., Inc. v. Access Closure, Inc.*, 729 F.3d

1369, 1380 (Fed. Cir. 2013) (holding patents invalid where line of demarcation from restriction requirement not maintained); *see also Gerber Garment Tech., Inc. v. Lectra Sys., Inc.*, 916 F.2d 683, 688 (Fed. Cir. 1990) (finding asserted claims of a continuation patent of a divisional invalid for lack of consonance); *Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1579 (Fed. Cir. 1991) (extending § 121 safe harbor provision to continuation applications descending from a divisional application). Stated differently, a continuation of a divisional cannot claim an invention from a different restricted group. *Id.* Yet the '106 patent does exactly that—claiming WDM subject matter via a continuation of a divisional restricted to sheath-flow methods.

Patent Owner's misfiling is not a technicality; it is the reason the '106 patent issued at all. Having already exhausted the proper WDM continuation chain, Patent Owner used the sheath-flow divisional lineage as an improper vehicle to obtain additional WDM patents (including the '106 patent). This gamesmanship alone strongly favors institution.

**B. Petitioner's Settled Expectations Strongly Favor Institution**

Petitioner likewise developed strong settled expectations long before the '106 patent was filed or issued. The accused Aurora system launched in June 2017—over seven years before the '106 patent's December 24, 2024 issuance. (EX1109.) Indeed, when Aurora launched in June 2017, none of the asserted patents had issued.

The only patent related to the asserted patents which issued prior to the launch of Aurora was the '412 patent, which Patent Owner has not asserted, suggesting it did not support any infringement allegations. This comprises a tacit concession of non-infringement by Patent Owner, increasing Petitioner's settled expectations. Further, after litigation commenced, Patent Owner never suggested that a later, unrelated continuation of a divisional (the '106 patent) would be used to assert infringement of the Aurora system. That course of conduct reasonably reinforced Petitioner's settled expectations that its long-standing product did not implicate a distinct, later-filed continuation. *See Datadome S.A. v. Arkose Labs Holdings, Inc.*, IPR2025-00693, -00694, Paper 13 at 2 (PTAB Aug. 14, 2025) (recognizing that a patent owner's conduct can give rise to settled expectations).

Those expectations were further reinforced when Patent Owner withdrew the '106 patent from district court litigation before institution—an implicit acknowledgment that this patent's unusual prosecution path and misaligned continuation status rendered it ill-suited for litigation. Because the '106 patent issued only recently and was asserted for the first time more than seven years after Aurora's launch, the equities weigh heavily in favor of instituting the Petition.

## **VI. CONCLUSION**

For the foregoing reasons, Petitioner respectfully opposes Patent Owner's Request for Discretionary Denial.

Dated: December 23, 2025

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify, pursuant to 37 C.F.R. § 42.6, that I caused a true and correct copy of the foregoing documents **PETITIONER’S OPPOSITION TO PATENT OWNER’S REQUEST FOR DISCRETIONARY DENIAL**, including exhibits (Nos. 1109-1111) are being served via electronic mail on the 23rd day of December, 2025, upon Patent Owner’s counsel as follows:

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DATED: December 23, 2025

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