

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ENERGY SOLUTION, LTD.,
Petitioner,

v.

MOLECULAR REBAR DESIGN, LLC,
Patent Owner.

IPR2024-01012
Patent 10,608,282 B2

Before JON B. TORNQUIST, JEFFREY W. ABRAHAM, and
JULIA HEANEY, *Administrative Patent Judges*.

HEANEY, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes Review*
35 U.S.C. § 314

I. INTRODUCTION

LG Energy Solution, Ltd. (“Petitioner”) filed a Petition to institute an *inter partes* review of claims 1–16 of U.S. Patent No. 10,608,282 B2 (Ex. 1001, “the ’282 patent”). Paper 2 (“Petition” or “Pet.”). Molecular Rebar Design, LLC (“Patent Owner”) filed a Preliminary Response. Paper 5 (“Prelim. Resp.”). With our authorization, Petitioner filed a Reply to the Preliminary Response directed only to our discretion under 35 U.S.C. § 314(a) (Paper 6, “Prelim. Reply”), and Patent Owner filed a Sur-reply (Paper 7, “Prelim. Sur-reply”).

Institution of an *inter partes* review is authorized by statute when “the information presented in the petition . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.” 35 U.S.C. § 314(a). Upon consideration of the Petition in view of the record at this stage, we determine that Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of at least one claim challenged in the Petition. We also determine that the arguments and evidence of record do not support discretionary denial of the Petition under 35 U.S.C. § 314(a). Accordingly, we grant institution of an *inter partes* review of all claims and all grounds asserted in the Petition.¹

¹ *Guidance on the Impact of SAS on AIA Trial Proceedings* (Apr. 26, 2018), <https://www.uspto.gov/patents-application-process/patent-trial-and-appeal-board/trials/guidance-impact-sas-aia-trial>; *see also SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

A. Related Proceedings

The parties identify the following litigation involving the '282 patent: *Molecular Rebar Design, LLC v. LG Energy Solution, Ltd.*, Civil Action No. 2-24-cv-00107 (E.D. Tex.) filed Feb. 16, 2024; *Molecular Rebar Design, LLC v. Samsung Electronics Co., Ltd.*, Civil Action No. 2-24-cv-00108 (E.D. Tex.) filed Feb. 16, 2024; and *Molecular Rebar Design, LLC v. LG Chem, Ltd.*, Civil Action No. 1-22-cv-01130 (D. Del.) filed August 29, 2022 (dismissed). Pet. 78–79; Paper 4, 2.

B. The '282 patent

The '282 patent describes an improved binder composition, electrolyte composition, and a separator film composition using discrete carbon nanotubes, for energy storage and collection devices such as batteries, capacitors, and photovoltaics. Ex. 1001, codes (54), (57).

The '282 patent explains that binders have conventionally been developed “to overcome the deficiencies of poor adhesion to current collectors and to prevent microcracking during expansion and contraction of rechargeable batteries.” Ex. 1001, 1:59–62. The '282 patent describes that “[i]mpurities . . . with the binder can . . . be highly deleterious to battery performance.” *Id.* at 3:4–6. For example, “[c]ommercially available carbon nanotubes such as Baytubes® (Bayer AG) or Graphistrength® (Arkema) can contain as much as ten percent or more by weight of residual metal catalysts and are not considered advantageous for batteries at these levels of impurity.” *Id.* at 3:13–17.

The '282 patent further explains that “[t]he low ionic conductivities of polymer and inorganic solid electrolytes are presently a limitation to their general use in energy storage and collection devices.” Ex. 1001, 3:43–46.

The '282 patent describes that “[r]eplacement of the presently used [liquid and corrosive] electrolytes is desirable, but candidate electrolytes have poor ion transport.” *Id.* at 4:1–3. According to the '282 patent, “[i]mprovements desired” from typical electrolytic capacitors “include higher rates of charge and discharge which is limited by ion transport of the electrolyte.” *Id.* at 4:7–8.

The '282 patent describes the conventional use of a separator film to provide “electrical insulation between the electrodes[,] yet allow[] ion transport.” Ex. 1001, 4:10–11. According to the '282 patent, a “polymer separator film comprising discrete carbon nanotubes of this invention can improve ion transport yet still provide the necessary electrical insulation between the electrodes.” *Id.* at 4:18–21. The '282 patent describes “a composition comprising a plurality of discrete carbon nanotube fibers, said fibers having an aspect ratio of from about 10 to about 500, and wherein at least a portion of the discrete carbon nanotube fibers are open ended.” *Id.* at 4:30–34.

Figure 1 of the '282 patent, reproduced below, depicts “discrete carbon nanotubes of this invention with a bimodal length distribution where the maximum of one peak is about 700 nanometers and the maximum of the second peak is about 1600 nanometers.” Ex. 1001, 6:18–21.

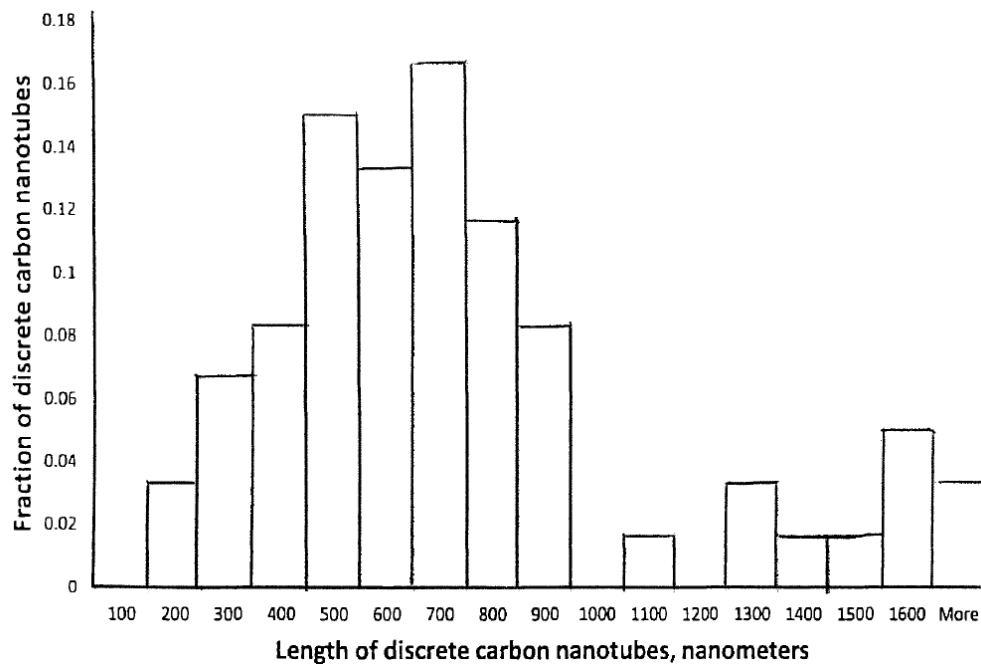


Figure 1 above shows a bimodal distribution of the length of discrete carbon nanotubes plotted on a graph. *Id.* at Fig. 1. The y-axis of Figure 1, labeled “Fraction of discrete carbon nanotubes,” ranges from 0 to 0.18. *Id.* at Fig. 1. The x-axis of Figure 1, labeled “Length of discrete carbon nanotubes, nanometers,” ranges from 100 nm to more than 1600 nm. *Id.* The ’282 patent explains that “[t]he lengths were determined by deposition of the discrete carbon nanotubes on a silicon wafer and by using scanning electron microscopy.” *Id.* at 6:21–24. According to the ’282 patent, a bimodal distribution of lengths of the discrete carbon nanotubes “such that one peak has a maximum value in the range of 150 to 800 nanometers and the second peak has a maximum value in the range 1000 to 3000 nanometers . . . is useful in binders and electrolytes of the invention.” *Id.* at 5:63–67.

The ’282 patent describes examples in which the discrete oxidized nanotubes provide lower values of impedance and improved ion transport in binders and separator films, improvements in the conductivity of solid

electrolyte films, and higher strength in comparison to controls having no discrete oxidized nanotubes. Ex. 1001, 10:64, 11:1, 12:64–65, 13:1–2.

C. Priority

The '282 patent was filed on January 26, 2018 as a continuation of U.S. application No. 14/390,902 which was filed as international application No. PCT/US2013/047029 on June 21, 2013, and claims the benefit of U.S. provisional application Nos. 61/663,513 filed on June 22, 2012 and 61/662,393 filed on June 21, 2012 (collectively “the provisional applications”). Petitioner contends that the '282 patent is not entitled to the benefit of its priority claim to the provisional applications because the provisional applications do not provide sufficient written description support for the aspect ratio distribution limitations in claim 1. Pet. 2–4; Ex. 1001, code (60). In view of this, Petitioner asserts that the earliest possible priority date for the challenged claims is June 21, 2013, the filing date of the PCT application.

Patent Owner states “[f]or purposes of this Preliminary Response only,” it takes no position regarding the priority date. Prelim. Resp. 2-3.

In view of the parties’ positions, we need not address Petitioner’s priority argument for purposes of this Decision. We, however, invite the parties to address this issue during the course of the trial. As discussed below (Section I.E), we apply the AIA versions of the statutory bases for unpatentability because the filing dates of the U.S. and PCT applications are after March 16, 2013.

D. The Challenged Claims

Petitioner challenges claims 1–16 (“the challenged claims”) of the ’282 patent. Pet. 1. Claim 1, reproduced below with Petitioner’s annotations, is illustrative of the subject matter of the challenged claims:

1. [1pre] A composition for use as a binder material, an electrolyte material or a separator film material of an energy storage or collection device, comprising:

[1a-i] a plurality of discrete carbon nanotube fibers, [1a-ii] said fibers having an aspect ratio of from about 10 to about 500, and [1a-iii] wherein at least a portion of the discrete carbon nanotube fibers are open ended and

[1b] wherein 40% to 90% by number of the discrete carbon nanotubes have an aspect ratio of 30–70 and wherein from 1% to 30% by number of discrete carbon nanotubes have an average aspect ratio 80–140.

Ex. 1001, 14:2–13; Pet. (Claim Listing v.).

E. Asserted Grounds of Unpatentability

Petitioner asserts the following grounds of unpatentability:

Challenged Claim(s)	35 U.S.C. ²	Reference(s)/Basis
1–16	§ 103	Bosnyak-392, ³ Son ⁴
4	§ 103	Bosnyak-392, Son, and So ⁵

² The Leahy-Smith America Invents Act (“AIA”) included revisions to 35 U.S.C. § 103 that became effective on March 16, 2013. As discussed above, we apply the AIA versions of the statutory bases for unpatentability.

³ PCT Pub. No. WO 2010/117392 A1 to Bosnyak et al., published Oct. 14, 2010 (Ex. 1005).

⁴ KIPO Pub. No. KR 10-2010-0086854 to Son et al., published August 2, 2010 (Ex. 1007), relying on an uncontested certified English translation (Ex. 1008).

⁵ JPO Pub. No. JP 2005-262391 A to So, published Sept. 29, 2005 (Ex. 1013), relying on an uncontested certified English translation (Ex. 1014).

Challenged Claim(s)	35 U.S.C. ²	Reference(s)/Basis
11	§ 103	Bosnyak-392, Son, and Gu ⁶
1, 5–9, 12–16	§ 103	Bosnyak-129, ⁷ Albuerne ⁸
2–4, 10, 11	§ 103	Bosnyak-129, Albuerne, and Gu

Pet. 11. Petitioner relies on the Declaration of Dr. Samuel P. Gido (Ex. 1003).

II. ANALYSIS

A. Claim Construction

We apply the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b). Under that standard, claim terms “are generally given their ordinary and customary meaning” as understood by a person of ordinary skill in the art at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312–13 (Fed. Cir. 2005) (*en banc*). “In determining the meaning of the disputed claim limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

⁶ X. Gu et al. “Layered and interfacially blended polyelectrolyte multi-walled carbon nanotube composites for enhanced ionic conductivity,” *Thin Solid Films*, 520, 1872–79 (2012) (Ex. 1016).

⁷ PCT Pub. No. WO 2011/163129 A2 to Bosnyak et al., published Dec. 29, 2011 (Ex. 1006).

⁸ J. Albuerne, et al. “Modification of Multiwall Carbon Nanotubes by Grafting from Controlled Polymerization of Styrene: Effect of the Characteristics of the Nanotubes,” *Journal of Polymer Science: Part B: Polymer Physics*, 48, 1035–46 (2010) (Ex. 1009).

Petitioner argues that “no formal claim constructions are necessary in this proceeding.” Pet. 7. Although Patent Owner “reserves the right to propose constructions,” Patent Owner notes that “Petitioner asserts on page 63 n.9 that ‘Petitioner interprets ‘average aspect ratio’ to mean ‘aspect ratio,’ which is consistent with how this term was interpreted during prosecution of the ’282 Patent.” Prelim. Resp. 1-2. Patent Owner takes no position on Petitioner’s assertion of the construction of “average aspect ratio.” *Id.* at 2.

In view of the parties’ arguments, we determine we need not construe any claim term at this stage of the proceeding. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (citing *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”)).

B. Level of Ordinary Skill in the Art

Factors pertinent to a determination of the level of ordinary skill in the art include “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of workers active in the field.” *Envtl. Designs, Ltd. v. Union Oil Co. of Cal.*, 713 F.2d 693, 696–697 (Fed. Cir. 1983) (citing *Orthopedic Equip. Co. v. All Orthopedic Appliances, Inc.*, 707 F.2d 1376, 1381–82 (Fed. Cir. 1983)). Not all such factors may be present in every case, and one or more of these or other factors may predominate in a particular case. *Id.*

Petitioner argues a person of ordinary skill in the art at the time of the invention “would have had at least a Master’s degree in materials science,

chemistry, chemical engineering, a field relevant to polymer science and engineering, or the equivalent, and at least three years of experience in nanomaterials, electrochemistry, batteries, or polymer related activities.”

Pet. 7. Petitioner further argues that “[a]dditional work experience can compensate for less formal education, and vice versa.” *Id.* (citing Ex. 1003 ¶¶ 19–21).

Patent Owner does not dispute the level of ordinary skill in the art. Prelim. Resp. 2. For purposes of this decision, we adopt Petitioner’s definition of the level of ordinary skill in the art because it is consistent with the ’282 patent and the asserted prior art.

C. Principles of Law

A claim is unpatentable under 35 U.S.C. § 103 if “the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.” *KSR Int’l Co. v. Teleflex, Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations, including (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the art; and (4) when available, evidence such as commercial success, long felt but unsolved needs, and failure of others. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966); *see KSR*, 550 U.S. at 407 (“While the sequence of these questions might be reordered in any particular case, the [Graham] factors continue to define the inquiry that controls.”).

The Supreme Court made clear that we apply “an expansive and flexible approach” to the question of obviousness. *KSR*, 550 U.S. at 415. Whether a patent claiming the combination of prior art elements would have been obvious is determined by whether the improvement is more than the predictable use of prior art elements according to their established functions. *Id.* at 417. Reaching this conclusion, however, requires more than merely showing that the prior art includes separate references covering each separate limitation in a challenged claim. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). Rather, obviousness additionally requires that a person of ordinary skill at the time of the invention “would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention.” *Id.*

E. Alleged Obviousness Based on Bosnyak-392 and Son

Petitioner contends the combination of Bosnyak-392 and Son renders claims 1–16 obvious. Pet. 8–39. In support, Petitioner and Mr. Gido explain where they believe each limitation of the challenged claims is disclosed in the references, and the reasons a person of ordinary skill would have been motivated to combine the disclosures of the references. *See, e.g., id.* at 11–39; Ex. 1003 ¶¶ 33–101.

1. Overview of Bosnyak-392 (Ex. 1005)

Bosnyak-392 is a PCT patent publication titled “Exfoliated Carbon Nanotubes, Methods for Production Thereof and Products Obtained Therefrom” and describes the nanotubes’ utility for energy storage devices and in polymer composites. Ex. 1005, codes (54), (57).

According to Bosnyak-392, inability to reliably produce individualized carbon nanotubes has hampered their use in energy storage devices and polymer composites. *Id.* ¶ 5. Bosnyak-392 describes that “current methods for producing exfoliated carbon nanotubes usually results in shortening or functionalization of the nanotubes,” which “generally results in reduced conductivity.” *Id.* ¶ 6. Bosnyak-392 further describes that “solid exfoliated carbon nanotubes and methods for efficiently exfoliating carbon nanotubes without nanotube damage are” desirable. *Id.* ¶ 7.

Bosnyak-392 explains that exfoliated carbon nanotubes take advantage of physical properties offered by individual carbon nanotubes that are not apparent when the carbon nanotubes are aggregated in bundles. *Id.* ¶ 37. Bosnyak-392 describes embodiments having exfoliated carbon nanotubes having a narrower distribution of lengths and diameters than bundled carbon nanotubes (*id.* ¶¶ 41, 42) and “full-length carbon nanotubes that have open ends” (*id.* ¶ 38). Bosnyak-392 describes carbon nanotubes having an aspect ratio of least about 100 in some embodiments and at least about 1000 in other embodiments. *Id.* ¶ 42.

2. Overview of *Son* (Ex. 1008)⁹

Son is a Korean patent publication titled “Polymer composite and manufacturing method thereof.” Ex. 1008, code (54). Son describes a polymer composite comprising carbon nanotubes, “characterized in that a distribution graph of weight ratio to aspect ratio has at least two peak shapes.” *Id.*, code (57).

⁹ In this Decision, citations to Son refer to its certified English translation, Exhibit 1008.

Son explains that it is advantageous to use carbon nanotubes with a high aspect ratio, but “when the aspect ratio is high, the dispersibility of the carbon nanotubes deteriorates due to the van der Waals bonding force between the carbon nanotubes.” Ex. 1008 ¶ 3. Son further describes that

[c]arbon nanotubes with a small aspect ratio are problematic in that it is difficult to form an electrical network because it is difficult to connect contacts between nanotubes. On the other hand, when carbon nanotubes with short lengths are used, their compatibility with polymers increases and mechanical properties of polymer composites are improved.

Id. ¶ 5 According to Son, “[t]he object of the present invention is achieved by having at least two peaks in a distribution graph of a weight ratio to an aspect ratio of the carbon nanotubes in a polymer composite material comprising carbon nanotubes.” *Id.* ¶ 8.

Figure 1 of Son, reproduced below, depicts conceptually a polymer composite using carbon nanotubes.

Drawings
FIG. 1

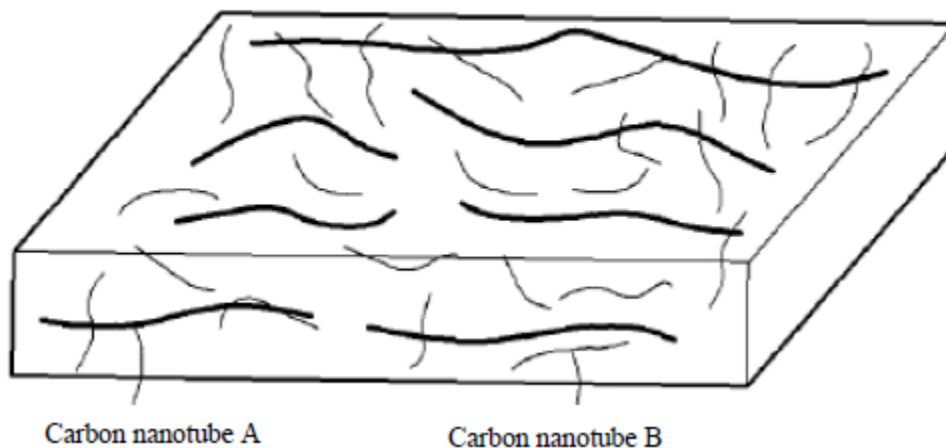


Figure 1 above shows carbon nanotubes A having a large aspect ratio and carbon nanotubes B having a small aspect ratio together in a block of

polymer composite. *Id.* ¶ 20. According to Son, “the excellent dispersibility of the carbon nanotube B with a small aspect ratio and the electrical properties of the carbon nanotube A with a large aspect ratio are simultaneously expressed.” *Id.* ¶ 21.

Figure 4 from Son, reproduced below, is a distribution graph showing the aspect ratio-weight ratio of carbon nanotubes in a polymer composite. Son ¶ 63.

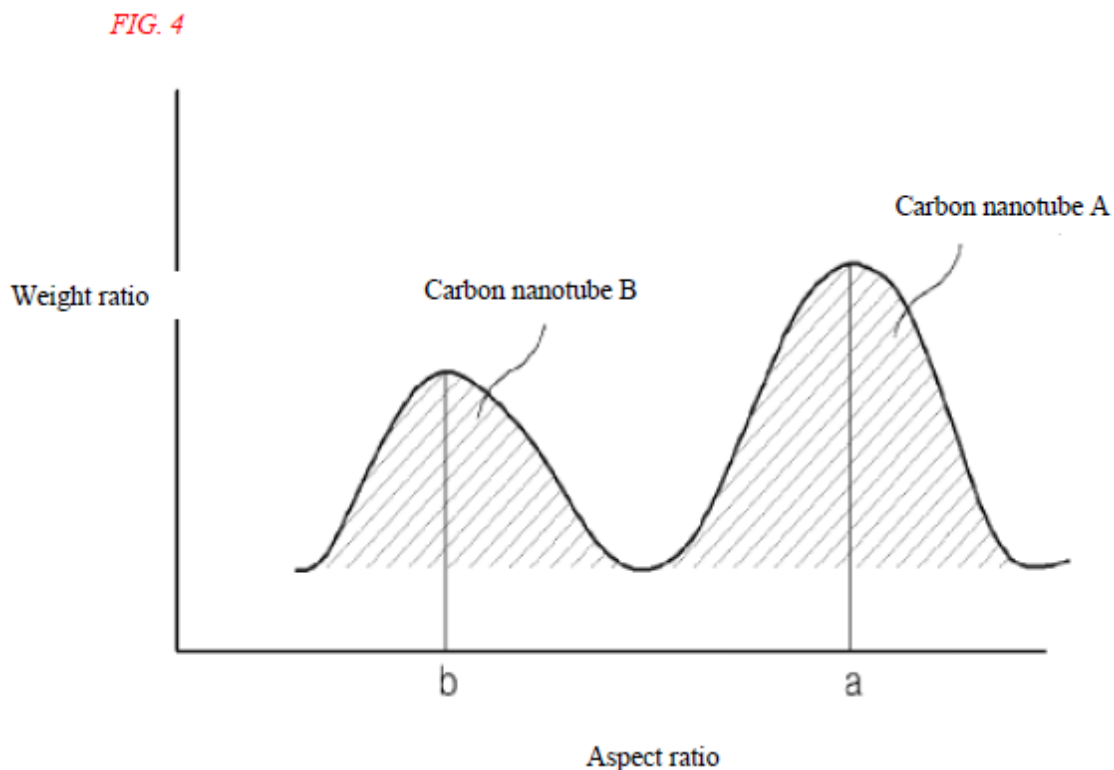


Figure 4 above shows “carbon nanotubes comprised in the polymer composite ... expressed as a weight ratio according to an aspect ratio.” *Id.* ¶ 25. Son explains that “[a] peak having a relatively high aspect ratio and having a vertex at the aspect ratio a corresponds to carbon nanotube A,” whereas “[a] peak having a relatively low aspect ratio and having a vertex at the aspect ratio b corresponds to carbon nanotube B.” *Id.* ¶ 27. According to Son, “[i]f the carbon nanotube A is too long, mechanical properties may

deteriorate due to non-uniform dispersion,” but “if the carbon nanotube B is too short, a problem arises in that the total content of the carbon nanotube must be excessively increased to form an electrical network.” *Id.* ¶ 30. Son describes that the weight ratio of each type of carbon nanotube “can be easily determined by a person skilled in the art according to the inherent properties of carbon nanotubes and which of mechanical properties and electrical properties to give priority to.” *Id.* ¶ 33.

3. Analysis

Claim 1

Petitioner argues Bosnyak-392 discloses electrolytes and separators as components of energy storage devices, and compositions of exfoliated carbon nanotubes for those components. Pet. 13–14 (citing Ex. 1005 ¶¶ 8, 14, 74, claim 37). Petitioner argues Bosnyak-392 discloses discrete carbon nanotubes because it describes providing “individual carbon nanotubes” as opposed to nanotubes aggregated into bundles. *Id.* at 15 (citing Ex. 1008 ¶¶ 6, 8, 36, 37, 54). Further, Petitioner argues the ’282 patent recognizes exfoliated carbon nanotubes are discrete, because it refers to “discrete oxidized carbon nanotubes, alternatively termed exfoliated carbon nanotubes.” *Id.* (citing Ex. 1001, 6:50–54)(emphasis omitted).

Petitioner argues Bosnyak-392 discloses its carbon nanotubes have an aspect ratio of at least about 100 (*id.* at 14, citing Ex. 1005 ¶ 42), and that Son discloses using two different groups of carbon nanotubes, the first group having an aspect ratio between 10–65 and the second group having an aspect ratio between 130–1000. *Id.* (citing Ex. 1008 ¶¶ 9, 14, 16, 28, 29, Fig. 4, claims 2, 7, 9). Petitioner further argues Son discloses a bimodal aspect ratio distribution of its two nanotube groups, with more of the lower aspect

ratio tubes compared to the higher aspect ratio nanotubes. *Id.* at 18 (citing Ex. 1008, Fig. 4). Petitioner and Dr. Guido explain, using three different approaches, that a person of ordinary skill would have understood how to approximate or calculate a distribution of aspect ratios by number percentage (as recited in claim 1 of the '282 patent) from Son's disclosure of distribution of aspect ratios by weight percentage. *Id.* at 19–28 (citing Ex. 1003 ¶¶ 52–80).

Petitioner argues a person of ordinary skill in the art would have been motivated by Son's teachings to use Son's aspect ratio distribution in Bosnyak-392's composition of carbon nanotubes. Pet. 11–13. Petitioner explains that Son, like Bosnyak-392, teaches a polymer composite material using carbon nanotubes, and Son additionally recognizes that using discrete carbon nanotubes with two different aspect ratios within the composite material can yield improved mechanical and electrical properties, using a "routine/conventional process that can be 'easily determined by a person skilled in the art.'" *Id.* at 12 (citing Ex. 1008 ¶¶ 4, 20, 33). Petitioner further argues Bosnyak-392 similarly recognizes the desire to use a bimodal aspect ratio distribution of both shorter and longer nanotubes. *Id.* at 17 (citing Ex. 1005 ¶ 73). Petitioner thus argues a person of ordinary skill in the art would have recognized the mechanical and electrical properties of Bosnyak-392's nanocomposite material can be further improved through the specific bimodal distribution teachings of Son. *Id.* at 12–13 (citing Ex. 1008 ¶¶ 8, 21). Petitioner argues using Son's teachings in Bosnyak-392's composition would merely have involved application of a known technique to a known structure to yield predictable results, and a person of ordinary

skill in the art would have had a reasonable expectation of success in doing so. *Id.* at 13 (citing Ex. 1003 ¶¶ 38, 52; Ex. 1005 ¶ 58; Ex. 1014 ¶ 18).

Patent Owner argues Bosnyak-392 leads away from shorter nanotubes with a low aspect ratio and desires to have a single, narrow distribution of large carbon nanotube lengths. Prelim. Resp. 5–7 (citing Ex. 1005 ¶¶ 6, 38, 41, 73, 97). Therefore, Patent Owner argues, there would have been no reason for a person of ordinary skill in the art to employ a large portion (40%–90%) of short nanotubes and a lesser amount (1%–30%) of longer nanotubes. *Id.* at 8–9. Patent Owner further argues Son “teaches the fundamental opposite of Bosnyak-392” because Son teaches changing the aspect ratios of its nanotubes, in contrast to Bosnyak-392’s objective “to maintain longer nanotubes and avoid changing the length and shortening the nanotubes.” *Id.* at 10.

Patent Owner further argues Son does not disclose the aspect ratios of claim 1, because Son’s aspect ratios are based on weight percentage while claim 1’s aspect ratios are based on the number of discrete carbon nanotubes. Prelim. Resp. 16–17. Patent Owner argues that Petitioner’s challenge to claim 1 is based on improper hindsight because Dr. Guido started with the claimed aspect ratios and then tried to arrive at them using the combination of Bosnyak-392 and Son. *Id.* at 17–19.

Having considered the evidence and arguments presented by both parties on the present record, we are persuaded Petitioner sufficiently shows the combination of Bosnyak-392 and Son teaches or suggests all of the limitations of claim 1, and sufficiently explains how a person of ordinary skill in the art would have used Bosnyak-392’s teaching of using exfoliated, open-ended carbon nanotube fibers having two different aspect ratios in a

composition with improved electrical and mechanical properties, with Son's implementation of a specific bimodal distribution of aspect ratios, to arrive at the composition of claim 1 with a reasonable expectation of success.

We do not find persuasive Patent Owner's arguments that Bosnyak-392 teaches away from using nanotubes with a lower aspect ratio, or that Bosnyak-392 has an objective of maintaining longer nanotubes. *See* Prelim. Resp. 5–9. Patent Owner's arguments appear to be based on a mischaracterization of Bosnyak-392, which read as a whole, discusses methods for exfoliating carbon nanotubes and physical properties of exfoliated nanotubes, such as length and diameter, that are not apparent when the nanotubes are aggregated. *E.g.*, Ex. 1005 ¶ 37. Although Bosnyak-392 recognizes that nanotube exfoliating techniques tend to reduce nanotube length (*see* Ex. 1003 ¶ 28), it does not discourage the use of shorter nanotubes. Rather, it recognizes that using short and long nanotubes together can produce a composite with improved electrical and mechanical properties. *See id.* (citing Ex. 1005 ¶ 73). *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004) (a reference does not teach away from a claimed invention unless it “criticizes, discredits, or otherwise discourages” the claimed solution).

Additionally, Patent Owner offers no evidence supporting its assertion that “there would be no reason” in view of Bosnyak-392 that a person of ordinary skill would employ short and long nanotubes within the ranges of claim 1 (Prelim. Resp. 9), whereas Petitioner and Dr. Guido explain that a person of ordinary skill in the art would have been able to use Bosnyak-392's teaching to improve electrical and mechanical properties even though

Bosnyak-392 itself does not disclose any specific aspect ratio distributions. *See* Ex. 1003 ¶¶ 33–38.

We have also considered Patent Owner’s arguments specifically concerning paragraph 73 of Bosnyak-392. Prelim. Resp. 11–14. We disagree, on this record, with Patent Owner’s assertion that Bosnyak-392’s statements that “shorter carbon nanotubes may not provide adequate electrical conductivity or structural integrity” and “longer carbon nanotube lengths may increase the toughness of the polymer composites over those made with shorter carbon nanotubes” (Ex. 1005 ¶ 73) lead away from using shorter carbon nanotubes at all. Prelim. Resp. 11-12 (emphasis omitted). The language Patent Owner relies on to support its assertion refers to benefits of longer nanotube lengths and the possibility of tradeoffs in an implementation using short and long nanotubes together. We do not consider this language to mean that shorter nanotubes offer insufficient benefit to justify their use in any of the nanotube composites Bosnyak-392 teaches. Therefore, on this record we do not agree with Patent Owner that Bosnyak-392 teaches away from using shorter nanotubes. *See Medichem, S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006) (holding “a given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.”).

We disagree with Patent Owner that Son does not disclose the distribution of nanotube aspect ratios in claim 1. For the reasons discussed above, Petitioner has demonstrated sufficiently that Son discloses using two different groups of carbon nanotubes, with the range of aspect ratios of each group overlapping the claimed range of aspect ratios of a group in claim 1. Patent Owner’s argument that Son does not teach the number percentages of

claim 1 because Son discloses weight percentages is not persuasive, on this record, in view of Petitioner and Dr. Gido's explanation as to how a person of ordinary skill would have been able to approximate or calculate a distribution of aspect ratios by number percentage, based on Son's weight percentages. Further, an overlap between ranges as demonstrated by Petitioner for the aspect ratio distribution limitations of claim 1 establishes a *prima facie* case of obviousness, and shifts the burden of production to Patent Owner to come forward with evidence indicating that the overlapping range would not have been obvious in light of that prior art. *E.I. DuPont De Nemours & Co. v. Synvina C.V.*, 904 F.3d 996, 1006 (Fed. Cir. 2018); *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003). At this stage, Patent Owner has not met its burden of production.

Accordingly, we determine that Petitioner has shown a reasonable likelihood of prevailing on its obviousness challenge to claim 1 based on Bosnyak-392 and Son.

Claims 2–16

Petitioner identifies where it believes every limitation of challenged dependent claims 2–16 is found in the combination of Bosnyak-392 and Son. Pet. 28–39. Patent Owner does not present separate arguments as to these dependent claims. *See generally* Prelim. Resp. We have reviewed Petitioner's evidence and arguments, and are persuaded on this preliminary record that Petitioner has shown a reasonable likelihood of prevailing on its obviousness challenge to claims 2–16.

F. Alleged Obviousness Based on Bosnyak-129 and Albuerne

Petitioner contends the combination of Bosnyak-129 and Albuerne renders claims 1, 5–9, and 12–16 obvious. Pet. 43–67. In support,

Petitioner and Mr. Gido explain where they believe each limitation of the challenged claims is disclosed in the references, and the reasons a person of ordinary skill would have been motivated to combine the disclosures of the references. *See, e.g., id.* at 48–67; Ex. 1003 ¶¶ 114–143.

1. Overview of Bosnyak-129 (Ex. 1006)

Bosnyak-129 is a PCT patent publication titled “Modified Carbon Nanotubes, Methods for Production Thereof and Products Obtained Therefrom.” Ex. 1006, code (54). Bosnyak-129 relates to exfoliation and dispersion of carbon nanotubes, resulting in high aspect ratio, surface-modified carbon nanotubes, which are readily dispersed in various media. *Id.* at code (57).

Bosnyak-129 explains that “[t]he fibers can be open-ended.” Ex. 1006 ¶ 8. Bosnyak-129 further explains that “[t]he fibers have an average diameter of from about 0.6 nanometers to about 30 nanometers . . . [and] have an average distribution length of from about 50 nanometers to about 10000 nanometers.” *Id.* ¶ 10. Bosnyak-129 discloses carbon nanotube fibers having an aspect ratio of from about 25 to about 500 (*id.* ¶ 7) and also discloses aspect ratios of at least about 60 in some embodiments and at least about 100 in other embodiments. *Id.* ¶ 100. Bosnyak-129 describes that “[i]n some embodiments, . . . the exfoliated carbon nanotubes have a narrower distribution of lengths [and diameters] than do the bundled carbon nanotubes.” *Id.* ¶¶ 99–100. Bosnyak-129 further describes that exfoliated carbon nanotubes prepared by its techniques are typically longer than are carbon nanotubes exfoliated using existing technology. *Id.* ¶ 130.

According to Bosnyak-129, ultracapacitors and batteries having components containing exfoliated carbon nanotubes have high energy

density and power density and better discharge and charge capabilities. Ex. 1006 ¶ 131.

2. Overview of *Albuerne* (Ex. 1009)

Albuerne is a journal article titled “Modification of Multiwall Carbon Nanotubes by *Grafting from* Controlled Polymerization of Styrene: Effect of the Characteristics of the Nanotubes.” Ex. 1009, 1035.¹⁰ *Albuerne* describes that “[d]ifferent strategies have been used to reduce the size of the aggregates or to improve the dispersion of individual carbon nanotubes.” *Id.*

Figure 1 from *Albuerne*, reproduced below, depicts a schematic representation of surface modification reactions carried out on multiwall carbon nanotubes (MWCNTs). Ex. 1009, 1038.

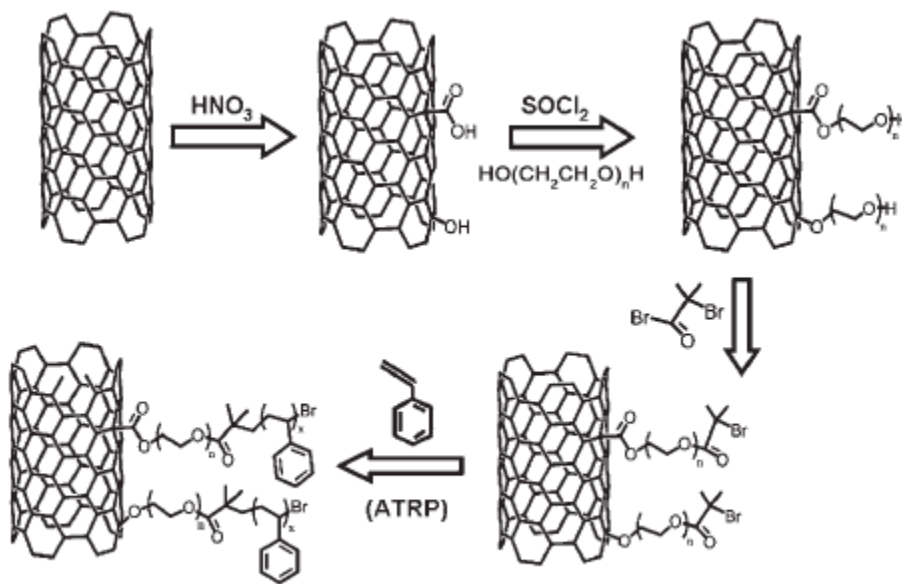


FIGURE 1 Schematic representation of the surface modification reactions carried out on MWCNTs.

Figure 1 above shows the surface modifications carried out on MWCNTs of *Albuerne*. *Id.* *Albuerne* describes oxidizing “two commercially available multiwall carbon nanotubes (MWCNTs) . . . with nitric acid, consecutively

¹⁰ We cite to the original page numbering of *Albuerne*.

reacted with thionyl chloride, glycol or poly(ethylene glycol), 2-bromo-2-methylpropionyl bromide and finally with styrene under atom transfer radical polymerization (ATRP) conditions.” *Id.* at Abstract. Albuerne describes separating the dispersed nanotubes having the carboxylate groups from those that remain aggregated, and studying the length distribution of the discrete carbon nanotubes using scanning force microscopy (SFM). *Id.* at 1039–1040.

Figure 5(b) from Albuerne, reproduced below, depicts the multiwall carbon nanotube length distribution (nm) of two commercially available MWCNTs that have been oxidized. *Id.* at 1040.

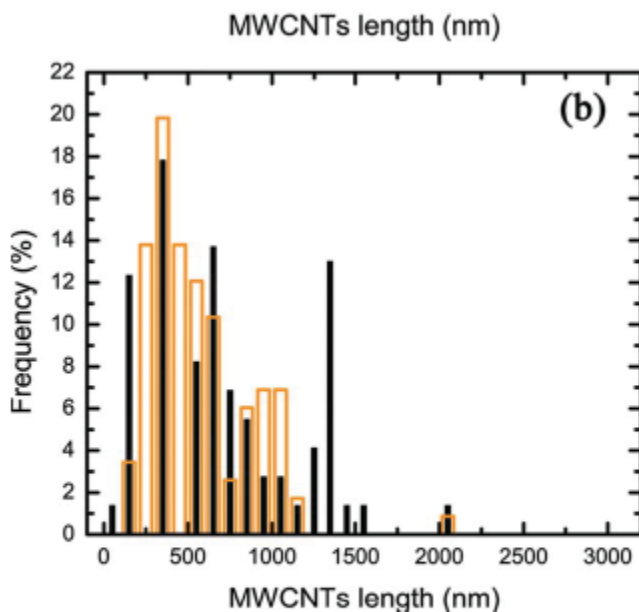


FIGURE 5 Carbon nanotube length distribution (nm) of (a) pristine MWCNTs and (b) oxidized MWCNTs, calculated from SFM phase images. Filled bars (black) correspond to MWCNT_{BMS}⁹⁵ and contour bars (orange) correspond to MWCNT_{FC}⁹⁹.

As shown in Figure 5(b) above, filled black bars correspond to MWCNT_{BMS} and orange contour bars correspond to MWCNT_{FC}.¹¹ *Id.* Albuerne describes that “[t]he distribution of the MWCNTs contour lengths can be appreciated in Figure 5.” *Id.* at 1039–1040. Albuerne explains that “[a]fter the acid treatment, the population of carbon nanotubes with shorter lengths decreases . . . , which evidences that the HNO₃ is also able to disrupt the carbon nanotubes.” *Id.* at 1040. “The carbon nanotube length distribution is slightly shifted to higher values after the acid treatment, which could indicate that the reaction unbundles longer carbon nanotubes from the aggregates.” *Id.*

3. Analysis

Claim 1

Petitioner argues Bosnyak-129 discloses electrolytes and separators as components of energy storage devices, and compositions of exfoliated carbon nanotubes for those components. Pet. 50–53 (citing Ex. 1006 ¶¶ 2, 37, 92, 131, 134, 138, Abstr., claim 33). Petitioner further argues Bosnyak-129 discloses discrete carbon nanotube fibers that can be obtained by contacting entangled nanotubes with an acid solution such as sulfuric and nitric acids, and sonicating them. *Id.* at 53–55 (citing, *e.g.*, Ex. 1006 ¶¶ 11–12).

Petitioner argues Bosnyak-129 discloses its carbon nanotubes have an aspect ratio of from about 10 to about 500 and at least a portion of the nanotubes are open-ended. Pet. 46 (citing Ex. 1025, 28; Ex. 1006 ¶ 17).

¹¹ MWCNT_{BMS} denotes carbon nanotubes obtained from Bayer MaterialScience. MWCNT_{FC} denotes carbon nanotubes obtained from FutureCarbon GmbH. Ex. 1009, 1036.

Petitioner notes that Bosnyak-129 does not disclose the specific percentage and aspect ratios of claim 1.

Petitioner argues Albuerne discloses using a nitric acid treatment step followed by sonication to disentangle aggregated nanotubes into discrete nanotubes, in a process for making polymer matrix composites. Pet. 46–47 (citing Ex. 1009, 1035–36). Petitioner further argues Albuerne discloses that its discrete nanotubes have mean diameter of 15 nm and length distribution as shown in Figure 5(b), and that the aspect ratio distribution, which a person of ordinary skill in the art would have been able to calculate from the lengths and mean diameter, overlaps with the specific percentages of aspect ratio ranges in claim 1. *Id.* at 60–63 (citing Ex. 1009, 1039–40).

Petitioner argues a person of ordinary skill in the art would have been motivated to combine Albuerne with Bosnyak-129 because both references teach oxidizing aggregated carbon nanotubes using similar acid solutions and sonication techniques to disperse the nanotubes. Pet. 48–49. Petitioner further argues it would have been a simple substitution for a person of ordinary skill in the art to have used Albuerne’s nitric acid treatment in Bosnyak-129’s process, in view of Albuerne’s teaching that its acid treatment preserves the discrete nanotubes “without cutting the length of the carbon nanotubes or lo[s]ing any of the walls” (*id.* at 49 (citing Ex. 1009, 1038)), and its teaching that nitric acid treatment provides the predictable result “of obtaining discrete oxidized carbon nanotubes having longer carbon nanotubes.” *Id.* at 48–49 (citing Ex. 1003 ¶¶ 114-15).

Patent Owner argues that Bosnyak-129 is similar to Bosnyak-392, and similarly focuses on avoiding short nanotubes. Prelim. Resp. 19–21. For

example, Patent Owner relies on paragraph 130¹² of Bosnyak-129 which includes the same disclosure as paragraph 73 of Bosnyak-392, and paragraph 99 of Bosnyak-129 which includes the same disclosure as paragraph 41 of Bosnyak-392. *Id.* at 20; *see* Section II.E.3. Patent Owner further argues Albuerne’s teachings would lead a person of ordinary skill in the art away from a Bosnyak-129 combination, and that even if the combination were made, it would not yield independent claim 1. *Id.* Patent Owner argues that Albuerne is fundamentally different because it “discloses and endorses aggregated nanotubes and not discrete nanotubes” and “desires ‘tight aggregates’ of nanotubes to ‘enhance the propagation of the growing polymer chain.’” *Id.* at 22 (citing Ex. 1009, 1045). Patent Owner further argues Albuerne’s nanotubes are not discrete, but rather, aggregates. *Id.* at 24–25 (citing Ex. 1009, 1040, 1045).

Additionally, Patent Owner argues that Petitioner’s rationale of obtaining “even longer carbon nanotubes than in Bosnyak-129” would result in an aspect ratio outside the range of claim 1’s mixture of aspect ratios. Prelim. Resp. 23–24.

Having considered the evidence and arguments presented by both parties on the present record, we are persuaded Petitioner sufficiently shows the combination of Bosnyak-129 and Albuerne teaches or suggests all of the limitations of claim 1, and that a person of ordinary skill in the art would have had reason to combine them.

Petitioner sufficiently shows that both Bosnyak-129 and Albuerne disclose discrete carbon nanotubes, obtained by similar oxidation reactions

¹² Patent Owner cites to Ex. 1006 ¶ 100 (Prelim. Resp. 20), but the correct citation is Ex. 1006 ¶ 130, which we cite herein.

of entangled carbon nanotubes with an acidic solution. *See* Pet. 53–57. We disagree with Patent Owner’s assertions that Albuerne’s nanotubes are not discrete, and that Albuerne is fundamentally different from Bosnyak-129 because it endorses aggregated nanotubes. Although Albuerne’s abstract and conclusion include the statements Patent Owner relies on, i.e., that tight aggregates of nanotubes promote higher polymerization yields (*see* Prelim. Resp. 22–23), Albuerne also recognizes that oxidation leads to “disaggregation of nanotube bundles.” Ex. 1009, 1038, 1041 (stating “disaggregation of these carbon nanotubes during the functionalization reactions is more difficult”; “the functionalization reaction helps to disaggregate the [nanotubes]”). Also, Albuerne’s discussion of its experiments, directed at oxidation of different types of carbon nanotubes under different conditions, recognizes that some degree of disaggregation occurs and “leads to the presence of longer carbon nanotubes or looser aggregates in the dispersion.” *Id.* at 1040. In view of the entirety of Albuerne’s disclosure, we disagree with Patent Owner that Albuerne’s statements, i.e., that tight aggregates of nanotubes promote higher polymerization yields, rise to the level of criticizing or discouraging discrete nanotubes. *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 567 F.3d 1314, 1327 (Fed. Cir. 2009).

Patent Owner’s arguments that Albuerne’s length distributions of carbon nanotubes in Figure 5 are inaccurate and only useful for comparison of the two types of nanotubes Albuerne tested (Prelim. Resp. 25–26), do not persuade us at this stage of the proceeding that Albuerne does not disclose the aspect ratio limitations of claim 1. Petitioner has directed us to the portions of Albuerne describing how the data in Figure 5 was obtained, and

Dr. Guido explains how a person of ordinary skill in the art would have been able to calculate aspect ratio distributions from the length distributions in Figure 5, and that those aspect ratio distributions are within the ranges of claim 1. Pet. 59–61; Ex. 1003 ¶¶ 130–32. Even giving Patent Owner’s arguments as to the deficiencies of Albuerne’s data their full weight, there is no evidence on the present record as to how much this would change Albuerne’s aspect ratio values. Rather, based on the present record, it seems reasonably likely that Albuerne’s aspect ratio distributions overlap the claimed ranges, as Petitioner asserts. At this stage of the proceeding, Patent Owner’s attorney arguments do not undermine Petitioner’s evidence. Nevertheless, Patent Owner may adduce evidence during trial to address the asserted deficiencies in Albuerne’s aspect ratio data.

We do not find Patent Owner’s arguments that Bosnyak-129 leads away from using short nanotubes (Prelim. Resp. 19–21) persuasive, for the same reasons as we discussed for Patent’s Owner’s argument applied to Bosnyak-392. *See* Section II.E.3.

Accordingly, we determine that Petitioner has shown a reasonable likelihood of prevailing on its obviousness challenge to claim 1 based on a combination of Bosnyak-129 and Albuerne.

Claims 5–9 and 12–16

Petitioner identifies where it believes every limitation of challenged claims 5–9 and 12–16 is found in the combination of Bosnyak-129 and Albuerne. Pet. 63–67. Patent Owner does not present separate arguments as to these dependent claims. *See generally* Prelim. Resp. We have reviewed Petitioner’s evidence and arguments, and are persuaded on this preliminary

record that Petitioner has shown a reasonable likelihood of prevailing on its obviousness challenge to claims 5–9 and 12–16.

G. Other Grounds Challenging Dependent Claims

Petitioner contends combinations of Bosnyak-392, Son, and additional references render claims 4 and 11 obvious, and the combination of Bosnyak-129, Albuerne, and Gu renders claims 2–4, 10, and 11 obvious. *See* Section I.E. Patent Owner does not present separate arguments as to these challenges to these dependent claims. *See generally* Prelim. Resp. As discussed above, we have determined that Petitioner demonstrates a reasonable likelihood it would prevail in showing that claims 1–16 are unpatentable. Therefore, a detailed analysis of these challenges is not necessary at this stage of the proceeding. *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”). We will address the merits of these challenges, if necessary, after a full development of the record during trial.

III. DISCRETION UNDER 35 U.S.C. § 314(a)

Patent Owner contends that we should exercise discretion to deny institution in favor of the parallel proceeding taking place in the U.S District Court for the Eastern District of Texas. Prelim. Resp. 29. Patent Owner cites the discretionary-denial factors articulated in *Apple Inc. v. Fintiv, Inc.*, IPR2020-00019, Paper 11 at 5–6 (PTAB Mar. 20, 2020) (precedential) (“*Fintiv*”). Prelim. Resp. 29–34. Petitioner opposes. Pet. 73–74.

Under § 314(a), the Director has discretion to deny institution of an *inter partes* review, and that discretion has been delegated to the Board. *See* 37 C.F.R. § 42.4(a) (“The Board institutes the trial on behalf of the

Director.”); *SAS Inst.*, 138 S. Ct. at 1356 (“[Section] 314(a) invests the Director with discretion on the question whether to institute review” (emphasis omitted)).

Under *Fintiv*, we consider the following factors to assess whether efficiency, fairness, and the merits support the exercise of authority to deny institution in view of a parallel proceeding:

1. whether the court granted a stay or evidence exists that one may be granted if a proceeding is instituted;
2. proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision;
3. investment in the parallel proceeding by the court and the parties;
4. overlap between issues raised in the petition and in the parallel proceeding;
5. whether the petitioner and the defendant in the parallel proceeding are the same party; and
6. other circumstances that impact the Board’s exercise of discretion, including the merits.

Fintiv at 5–6. In evaluating these factors, we “take[] a holistic view of whether efficiency and integrity of the system are best served by denying or instituting review.” *Id.* at 6 (citing Patent Trial and Appeal Board Consolidated Trial Practice Guide, 58 & n.2 (Nov. 2019) (“CTPG”).

Subsequently, the Director issued additional guidance on the application of the *Fintiv* Factors. See *Interim Procedure for Discretionary Denials in AIA Post-Grant Proceedings with Parallel District Court Litigation*, issued June 21, 2022 (“Guidance Memo”).¹³ Under the Guidance Memo “the PTAB will not rely on the *Fintiv* factors to discretionarily deny

¹³ Available at https://www.uspto.gov/sites/default/files/documents/interim_proc_discretionary_denials_aia_parallel_district_court_litigation_memo_20220621_.pdf.

institution in view of parallel district court litigation where a petition presents compelling evidence of unpatentability.” *Id.* at 2.

[C]ompelling, meritorious challenges will be allowed to proceed at the PTAB even where district court litigation is proceeding in parallel. Compelling, meritorious challenges are those in which the evidence, if unrebutted in trial, would plainly lead to a conclusion that one or more claims are unpatentable by a preponderance of the evidence.

Id. at 4. The application of the Guidance Memo is further guided by the precedential decisions of the Director in *OpenSky Indus., LLC v. VLSI Tech. LLC*, IPR2021-01064, Paper 102, 49–50 (Oct. 4, 2022) (precedential) and *CommScope Techs. LLC v. Dali Wireless, Inc.*, IPR2022-01242, Paper 23 (Feb. 27, 2023) (precedential) (“*CommScope*”). Accordingly, we are instructed to consider compelling merits under the sixth *Fintiv* factor only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5.

The Guidance Memo further states,

[c]onsistent with *Sotera Wireless, Inc.*, the PTAB will not discretionarily deny institution in view of parallel district court litigation where a petitioner presents a stipulation not to pursue in a parallel proceeding the same grounds or any grounds that could have reasonably been raised before the PTAB.

Id. at 3 (footnote omitted); see *Sotera Wireless, Inc. v. Masimo Corp.*, IPR2020-01019, Paper 12 (PTAB Dec. 1, 2020) (precedential as to § II.A).

We consider the parties’ contentions under the *Fintiv* factors below.

A. Factor 1: Whether the court granted a stay

Petitioner contends that the court in the Eastern District of Texas presiding over the parallel litigation involving the ’282 patent routinely grants a motion for stay where all asserted claims are under PTAB review.

Prelim. Reply 1 (citing *AGIS Software Dev. LLC v. Google LLC*, No. 2:19-cv-361, 2021 WL 465424 at *3 (E.D. Tex. Feb. 9, 2021)). Petitioner contends this factor is neutral.

Patent Owner recognizes that Petitioner filed a motion to stay the parallel litigation, which “was denied without prejudice to refile after institution decisions.” Prelim. Resp. 29. Patent Owner contends, however, that the court presiding over the parallel litigation routinely stays cases only where the PTAB has instituted IPR proceedings as to all claims of all asserted patents. Prelim. Sur-reply 1, citing *AGIS*, 2021 WL at *2. Patent Owner further argues it is unlikely that all five of Petitioner’s IPR petitions challenging patents at issue in the parallel litigation will be instituted, and thus it is speculative whether that court would issue a stay. Prelim. Sur-reply 1–2. Patent Owner contends this factor is neutral or weighs in favor of discretionary denial. *Id.* (citing *T-Mobile USA, Inc. et al. v. Wireless Alliance, LLC*, IPR2024-00608, Paper 16 at 12 (PTAB Sept. 3, 2024)).

Although the parties appear to agree that this factor is neutral, we note that a district court denial of a motion to stay without prejudice, accompanied by an indication that the district court would consider a renewed motion, “suggests the district court may be willing to avoid duplicative efforts and await the PTAB’s final resolution of the patentability issues raised in the petition before proceeding with the parallel litigation.” *Fintiv* at 6–7. “This fact has usually weighed against exercising authority to deny institution.” *Id.* (also noting that factors 2 and 3 are relevant to how much weight to give to the court’s willingness to reconsider a stay); *see also T-Mobile*, Paper 16 at 12 (noting that a stay was unlikely in that case given the proximity of the trial date to the entry of the institution decision).

In view of the forgoing, we determine that the considerations of *Fintiv* factor 1 weigh against exercising our authority to deny institution.

B. Factors 2 and 3: Proximity of the court’s trial date to the Board’s projected statutory deadline for a final written decision, and investment in the parallel proceeding by the court and the parties

Trial in the parallel district court litigation is set to begin on December 8, 2025. Ex. 2002. The statutory deadline for a Final Written Decision in this proceeding will fall in mid-December 2025.

Petitioner notes that these dates are around the same time, and argues the potential for conflict between the parallel district court litigation and this IPR is minimal “in view of EDTX’s growing backlog of cases and Petitioner’s offered stipulation.” Prelim. Reply 1. Petitioner argues the parties have not yet committed substantial resources in the EDTX litigation to discovery, which does not close until July 2025. *Id.* at 2. Petitioner further argues the majority of discovery the parties have engaged in relates to Petitioner’s motion to transfer to the Northern District of California, and the parties are still negotiating the scope of accused products. *Id.* Petitioner further argues it was diligent in filing the Petition promptly after commencement of the parallel district court litigation. *Id.* at 2.

Patent Owner contends that the proximity of the parallel district court trial date and a Final Written Decision here could result in conflicting decisions, and the chance of conflicting decisions is increased because Petitioner’s district court invalidity case involves 140 more references than this IPR. Prelim. Sur-reply 2. Patent Owner also points to Petitioner’s invalidity contentions as an example of “[s]ignificant time and money” spent in the parallel district court litigation. *Id.* Patent Owner contends “[t]he

parties are beginning to commit substantial resources to the parallel proceeding as discovery has begun in earnest.” Prelim. Resp. 30.

Having considered both sides’ arguments as to *Fintiv* factors 2 and 3, we determine that the considerations of these factors weigh against exercising discretionary denial. Neither party directs us to any substantive order issued by the district court in the parallel litigation, which indicates the court has not yet considered claim construction or potential invalidity of the ’282 patent. The *Markman* hearing will not occur until June 2025, and the expert discovery cutoff is not until August 2025. Ex. 2002. Thus, although the parties have begun discovery as to invalidity issues, much further work remains in the parallel district court litigation. We also take into account Petitioner’s prompt filing of the Petition, as weighing against exercising discretionary denial. *See Fintiv* 11 (“If the evidence shows that the petitioner filed the petition expeditiously, such as promptly after becoming aware of the claims being asserted, this fact has weighed against exercising the authority to deny institution . . .”).

A. Factor 4: Overlap between issues raised in the petition and in the parallel proceeding

Petitioner stipulates “not to seek resolution in the district court of the same grounds presented in this Petition.” Pet. 74. Petitioner contends its stipulation, combined with its filing of the Petition promptly after commencement of the parallel district court litigation, mitigates concerns of duplicative litigation. Prelim. Reply 2 (citing *Samsung Elecs. v. Staton Techiya, LLC*, IPR2022-00281-13, 8 (PTAB July 15, 2022)). Petitioner contends this factor weighs against discretionary denial.

Patent Owner contends this IPR will only resolve a portion of the invalidity issues in the parallel district court litigation, because Petitioner’s

extensive invalidity contentions in the parallel litigation include numerous references and combinations, in addition to the grounds presented in the Petition. Prelim. Resp. 31–32 (citing Ex. 2003); Prelim. Sur-reply 2–3. Thus, Patent Owner argues, Petitioner’s *Sand Revolution*¹⁴-type stipulation would only resolve a small portion of the issues in the EDTX litigation. Prelim. Sur-reply 3. Patent Owner contends this factor weighs in favor of discretionary denial.

We determine that the considerations of the fourth *Fintiv* factor weigh against exercising discretionary denial. We agree with Patent Owner that “given the breadth of remaining grounds of invalidity in parallel litigation,” Petitioner’s stipulation would only resolve a portion of the issues before the court. Prelim. Sur-reply 3. Nevertheless, Petitioner’s stipulation mitigates at least some concerns of inefficiency, and the Board has indicated that the type of stipulation offered by Petitioner does mitigate, at least to some extent, concerns of “potentially conflicting decisions.” *Sand Revolution* at 12.

B. Factor 5: Whether the petitioner and the defendant in the parallel proceeding are the same party

The parties agree that Petitioner and the defendant in the parallel district court litigation are the same party. Prelim. Reply 3; Prelim. Resp. 33. Petitioner contends this factor is neutral. Prelim. Reply 3.

Patent Owner contends that a related proceeding in EDTX, *Molecular Rebar Design, LLC v. Samsung Electronics Co.*, 2-24-cv-00108 (“Samsung litigation”), involves the same five patents and was consolidated with the

¹⁴ *Sand Revolution II, LLC v. Continental Intermodal Group – Trucking LLC*, IPR2019-01393, Paper 24 (PTAB June 16, 2020) (informative) (“*Sand Revolution*”).

parallel litigation for all pretrial issues. Prelim. Sur-reply 4. Patent Owner further argues “[e]ven in the unlikely case that all five petitions are instituted, Petitioner has not suggested that the district court case would somehow stay the consolidated case given that Samsung is not a party to the IPR proceedings.” *Id.* Patent Owner contends this factor weighs in favor of discretionary denial.

We find the parties in this proceeding are the same as in the parallel district court litigation, except that as Patent Owner notes, consolidation with the Samsung litigation introduces an additional defendant in the district court litigation. Patent Owner, however, never indicates whether the issues in the Samsung litigation are the same as, or substantially similar to, those to be litigated in its case against Petitioner. *See Fintiv* at 13–14. Based on the present record, we consider *Fintiv* factor five to weigh in favor of exercising discretionary denial.

C. Factor 6: Other circumstances, including the merits

Unsurprisingly, the parties take different views on the merits of the Petition. Petitioner contends the Petition presents a compelling case of invalidity (Prelim. Reply 2–5); Patent Owner contends Petitioner failed to present a *prima facie* case of obviousness. Prelim. Resp. 34.

According to the Director’s Guidance Memo, we should consider compelling merits under the sixth *Fintiv* factor only after a determination that the first five *Fintiv* factors favor discretionary denial. *CommScope*, 4–5. Here, we do not find the first five factors cumulatively weigh in favor of discretionary denial. Therefore, we determine that the circumstances here do not warrant an analysis of whether the Petition presents compelling

merits, and the considerations of the sixth *Fintiv* factor weigh against exercising discretionary denial.

D. Conclusion

Based on a holistic analysis of the *Fintiv* factors, we decline to exercise discretion under § 314(a) to deny institution of this *inter partes* review.

IV. CONCLUSION

Based on the arguments in the Petition and the evidence of record, we determine that Petitioner has established a reasonable likelihood of prevailing with respect to at least one challenged claim of the '282 patent, and we grant institution of an *inter partes* review on all challenges raised in the Petition.

At this stage of the proceeding, we have not made a final determination with respect to the patentability of any challenged claim or any underlying factual or legal issue, including claim construction. Our final decision will be based on the record as fully developed during trial.

V. ORDER

In consideration of the foregoing, it is hereby

ORDERED that an *inter partes* review of all challenged claims of the '282 patent instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '282 patent is hereby instituted commencing on the entry date of this Decision, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

IPR2024-01012
Patent 10,608,282 B2

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