

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LG ENERGY SOLUTION, LTD.,
SAMSUNG ELECTRONICS CO., LTD. and
SAMSUNG ELECTRONICS AMERICA, INC.,
Petitioner,

v.

MOLECULAR REBAR DESIGN LLC,
Patent Owner.

Case IPR2024-01011¹
Patent 8,968,924

PETITIONER’S UPDATED EXHIBIT LIST

¹ Samsung Electronics Co., Ltd. and Samsung Electronics America, Inc. were joined as parties to this proceeding via a Motion for Joinder in IPR2025-00357.

LIST OF EXHIBITS

- LGES-1001 U.S. Patent No. 8,968,924 (“the ’924 Patent”)
- LGES-1002 Excerpts from Prosecution History of the ’924 Patent (“the Prosecution History”)
- LGES-1003 Declaration of Dr. Yu Zhu
- LGES-1004 U.S. Patent Pub. No. 2004/0160156 (“Ohata”)
- LGES-1005 “Multi-walled carbon nanotubes functionalized by carboxylic groups: Activation of TiO₂ (anatase) and phosphate olivines (LiMnPO₄; LiFePO₄) for electrochemical Li-storage.” Ladislav Kavan et al. Journal of Power Sources 195 (2010) 5360-5369 (“Kavan”)
- LGES-1006 Chinese Patent Pub. No. 101714627 (“Cheng”)
- LGES-1007 Certified English Translation of CN 101714627 and Translator’s Declaration (“Cheng”)
- LGES-1008 U.S. Patent Pub. No. 2010/0124713 (“Farrugia”)
- LGES-1009 “Chemical oxidation of multiwalled carbon nanotubes.” V. Datsyuk et al. Carbon 46 (2008) 833-840 (“Datsyuk”)
- LGES-1010 “Surface and structural characterization of multi-walled carbon nanotubes following different oxidative treatments.” Kevin A. Wepasnick, et al. Carbon 49 (2011) 24-36 (“Wepasnick”)
- LGES-1011 “Carbon Nanotubes Properties and Applications.”
<https://www.cheaptubes.com/carbon-nanotubes-properties-and-applications/> (“Cheaptubes”)

LGES-1012-1013 Reserved

LGES-1014 “Surface modified multi-walled carbon nanotubes in CNT/epoxy-composites.” Florian H. Gojny, Jacek Nastalczyk, Zbigniew Roslaniec, Karl Schulte. Chemical Physics Letters 370 (2003) 820–824 (“Gojny”)

LGES-1015 “Sonochemical Oxidation of Multiwalled Carbon Nanotubes.” Yangchuan Xing, Liang Li, Charles C. Chusuei, and Robert V. Hull. Langmuir 2005, 21, 4185-4190 (“Xing”)

LGES-1016 Reserved

LGES-1017 Chinese Patent Pub. No. 102136576 (“Zhao”)

LGES-1018 Certified English Translation of CN 102136576 and Translator’s Declaration (“Zhao”)

LGES-1019-1020 Reserved

LGES-1021 U.S. Patent Pub. No. 2012/0058255 (“Gan”)

LGES-1022 Reserved

LGES-1023 Int’l Patent Pub. No. WO 2010/117392 (“Bosnyak”)

LGES-1024 U.S. Patent Pub No. 2009/0035469 (“Sue”)

LGES-1025 U.S. Patent No. 8,241,794 (“Sheem”)

LGES-1026 U.S. Patent Pub. No. 2011/0159366A1 (“Nakura”)

- LGES-1027 “Enhanced photocatalytic activity of mesoporous TiO₂ aggregates by embedding carbon nanotubes as electron-transfer channel.” J. Yu, T. Ma, S. Liu. *Phys. Chem. Chem. Phys.* 13 (2011) 3491–3501 (“Yu”)
- LGES-1028 “Hydrothermal synthesis of lithium iron phosphate.” J. Chen, M. Whittingham. *Electrochemistry Communications* 8 (2006) 855-858 (“Chen”)
- LGES-1029 “The preparation and electrochemical performances of LiFePO₄-multiwalled nanotubes composite cathode materials for lithium ion batteries.” Y. Feng. *Materials Chemistry and Physics* 121 (2010) 302-307 (“Feng”)
- LGES-1030 “Incorporation of MWCNTs into leaf-like CuO nanoplates for superior reversible Li-ion storage.” J.Y. Xiang, J.P. Tu, J. Zhang, J. Zhong, D. Zhang, J.P. Cheng. *Electrochemistry Communications* 12 (2010) 1103-1107 (“Xiang”)
- LGES-1031 A. Hirsch. “Functionalization of Single-Walled Carbon Nanotubes.” *Angew. Chem. Int. Ed.* 2002, 41, No. 11, 1853-1859 (“Hirsch”)
- LGES-1032 “A porous LiFePO₄ and carbon nanotube composite.” Y. Zhou, J. Wang, Y. Hu, R. O’Hayre, Z. Shao, *Chemical Communications* (2010), 46, 7151-7153 (“Zhou”)
- LGES-1033 *Molecular Rebar Design, LLC, and Black Diamond Structures, LLC v. LG Energy Solution, Ltd.*, Plaintiffs’ Disclosure of Asserted

Claims and Infringement, 2:24-cv-00107-JRG

- LGES-1034 Declaration of June Ann Munford (Kavan)
- LGES-1035 *Molecular Rebar Design, LLC, et al. v. LG Energy Solution, Ltd.*,
Sample Docket Control Order, 2:24-cv-00107-JRG
- LGES-1036 U.S. Provisional Application No. 61/500,560 (“560 Application”)
- LGES-1037 International Application No. PCT/US2012/043534 (“PCT
Application”)
- LGES-1038-1039 Reserved
- LGES-1040 Electronic Supplementary Information of LGES-1032
- LGES-1041 “Electrode Composite LiFePO₄@Carbon: Structure and
Electrochemical Performances.” L. Huynh, Journal of
Nanomaterials, 2463920 (2019) (“Huynh”).
- LGES-1042 “Synthesis of porous carbon nanotubes foam composites with a
high accessible surface area and tunable porosity.” Y. Liu, Journal
of Materials Chemistry (2013), 1, 9508 (“Liu”)
- LGES-1043 “Preparation of LiFePO₄/C Cathode Materials via a Green
Synthesis Route for Lithium-Ion Battery Applications.” R. Liu,
Materials (2018), 11, 2251 (“R. Liu”)
- LGES-1044-1052 Reserved
- LGES-1053 Deposition Transcript of Dr. Deborah Chung in IPR2024-01011,
dated July 1, 2025
- LGES-1054 Deposition Transcript of Dr. Deborah Chung in IPR2024-01006,
dated July 1, 2025

- LGES-1055 Deposition Transcript of Dr. Deborah Chung in IPR2024-01005,
dated June 25, 2025
- LGES-1056 Supplemental Declaration of Dr. Yu Zhu
- LGES-1057 Patent Owner's Response in IPR2024-01005
- LGES-1058 Declaration of Dr. Yu Zhu in IPR2024-01013
- LGES-1059 "Increase the Mechanical Performance of Polyvinylidene Fluoride
(PVDF)." M. Hou. Cheng. Advanced Materials Research Vols.
393-395 (2012).
- LGES-1060 Patent Owner's Response in IPR2024-01012 ('282 Patent)
- LGES-1061 U.S. Patent Pub. No. 2007/0060708 ("Wang")
- LGES-1062 "Alternative solvents for Lithium-Nickel-Cobalt-Manganese-
Oxide electrode fabrication for lithium-ion-cells." F. Heim et al.
Journal of Power Sources 558 (2023) 232546 ("Heim")
- LGES-1063 Petitioner's Demonstratives

Respectfully submitted,

Dated: September 12, 2025

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CERTIFICATE OF SERVICE

Pursuant to 37 CFR §§ 42.6(e)(4)(i) et seq. and 42.105(b), the undersigned certifies that on September 12, 2025, a complete and entire copy of this Petitioner's Updated Exhibit List and Exhibit 1063 were provided by email to the Patent Owner by serving the correspondence address of record as follows:

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