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PATENT ASSIGNMENT COVER SHEET

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NATURE OF CONVEYANCE:	ASSIGNMENT

CONVEYING PARTY DATA

Name	Execution Date
YANBO WANG	08/29/2013
HUI HE	08/29/2013
DR BOR Z JANG	10/26/2013
DR ARUNA ZHAMU	10/26/2013

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PROPERTY NUMBERS Total: 7

Property Type	Number
Application Number:	13987565
Application Number:	13199058
Application Number:	13987566
Patent Number:	9190696
Application Number:	13986814
Application Number:	13987396
Application Number:	13986223

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PATENT 503767651 REEL: 038339 FRAME: 0368

SIGNED: 04/04/2016	
This document serves as an Oath/Declaration (37 CFR 1.63)	
Attachments: 36	
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<u>ASSIGNMENT</u>

This Assignment Agreement is made and entered by and between <u>Aruna Zhamu</u>, a citizen of P. R. China, residing at <u>765 Hidden Circle, Centerville, Ohio</u> (the "Assignor") and Nanotek Instruments, Inc., an Ohio corporation whose address is 1240 McCook Avenue, Dayton, OH 45404 (the "Assignee").

WHEREAS, Assignor is an inventor or co-inventor of certain new and useful inventions related to the production and use of new materials, including nano-scaled graphene plates, processes, energy technologies, and other technologies as more fully described herein (the "Inventions"), and

WHEREAS, Assignee desires to acquire the entire right, title and interest in and to the Inventions.

NOW, THEREFORE, the parties agree as follows:

- 1. The term "Inventions" shall mean (1) the issued United States patents listed in Schedule "A" attached hereto and incorporated herein by reference and all corresponding rights to claim priority. (2) the patent applications listed in Exhibit "A" and any and all improvements which are disclosed in any of the aforesaid patent applications, (3) all Letters Patent to be obtained for said Inventions by the above applications or any continuation, divisional, renewal, or substitute thereof and, as to Letters Patent, any reissue or re-examination thereof, (4) all know-how, trade secrets, discoveries, concepts, ideas, and technologies related to the same, (5) any and all copyrights, copyright registrations and copyrightable subject matter related to the same; and (6) any trademarks related to such patents and patent applications.
- 2. In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration, the receipt of which is acknowledged, the Assignor hereby assigns, transfers and conveys to Assignee all of Assignor's right, title and interest in and to (a) the Inventions, (b) any U.S. or foreign Letters Patent which may issue from the Inventions, and (c) all divisions, continuations, reissues, re-examinations and extensions of the patents and applications listed on Schedule A.
- 3. Assignor further covenants that said Assignee will, upon its request, be provided promptly with all pertinent facts and documents relating to said Inventions and said Letters Patent and legal equivalents, as may be known and accessible to Assignor and he or she will testify as to the same in any interference, litigation or proceeding related thereto and will

application, said Inventions and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purpose thereof.

In Witness Whereof, the undersigned has executed this document as of the 26 day of 0.45 ber ... 2013

INVENTOR

(Signature)

Aruna Zhamu (Print Name)

State of Ohio

County of Montgomery

Before me personally appeared said Arona Zhamu and acknowledged the foregoing instrument to be his free act and deed, this 26th day of 0.45 ber ... 2013.

ROBERT ROCKWELL

Notary Public, State of Ohio

Notary Public

Notary Public

promptly execute and deliver to said Assignee or its legal representatives any and all papers,

instruments or affidavits required to apply for, obtain, maintain, issue and enforce said

EXHIBIT "A" <u>Assigned Patents</u> Invention Patents and Applications

- Jiusheng Guo, A. Zhamu, and B. Z. Jang, "Nano-scaled Graphene Plate-Reinforced Composite Materials and Method of Producing Same," US Patent No. 7,662,321 (02/16/2010) (US Pat. Appl No.11/257,508 (10/26/05)).
- Jiusheng Guo, A. Zhamu, and B. Z. Jang, "Nano-scaled Graphene Plate-Reinforced Composite Materials and Method of Producing Same," US App. No. 12/639,443 (12/16/2009). A continuation of US Pat. App. No. 11/257,508 (10/26/05)
- 3. B. Z. Jang, A. Zhamu, and Jiusheng Guo, "Electro-spinning of Nano-scaled Graphene Plate Composite," US Pat. Pending, 11/487,761 (07/17/06).
- 4. B. Z. Jang, A. Zhamu, Jiusheng Guo, and Lulu Song "Hybrid Fiber Tow Containing Both Continuous Fibers and Nano-Fillers, Hybrid Composite, and Processes" US Pat. Pending, 11/491,657 (07/24/2006).
- Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Process for Producing Nano-scaled Platelets and Nanocomposites," US Pat. Pending, 11/509,424 (08/25/2006). Gas Exf.
- 6. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Mass Production of Nano-scaled Platelets and Products," US Pat. Appl. No. 11/526,489 (09/26/2006); now US Patent No. 7,785,492 (Aug. 31, 2010).
- 7. B. Z. Jang, A. Zhamu, and L. Song, "Bio-responsive and Electrically Conductive Polymer Compositions for Tissue Engineering and Methods for Production," US Pat. Pending, 11/543413 (10/06/2006).
- 8. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Method of Producing Nano-scaled Graphene and Inorganic Platelets and Their Nanocomposites," US Pat. Appl. No. 11/709,274 (02/22/2007); Now US Patent No. 7,892,514 (Feb 22, 2011).
- 9. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Method of Producing Nano-scaled Graphene and Inorganic Platelets and Their Nanocomposites," US Pat. App. No. 12/983,947 (01/04/2011), a divisional of 11/709,274 (02/22/2007); now US Patent No. 8,308,984 (11/13/2012).
- Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Nano-scaled Graphene Plate Films and Articles," US Pat. Pending, 11/784,606 (04/09/2007).
- Aruna Zhamu, JinJun Shi, Jiusheng Guo, and Bor Z. Jang, "Low-Temperature Method of Producing Nano-scaled Graphene Platelets and Their Nanocomposites," US Pat. Pending, 11/787,442 (04/17/2007); Now US Patent No. 8,132,746 (03/13/2012).
- 12. Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Method of Producing Exfoliated Graphite, Flexible Graphite, and Nano-Scaled Graphene Plates," US Pat. Pending, 11/800,728 (05/08/2007); now US Patent No. 7,824,651 (11/02/2010).
- 13. Aruna Zhamu, Joan Jang, Jinjun Shi, and Bor Z. Jang, "Method of Producing Ultra-thin Nano-Scaled Graphene Platelets," US Pat. Pending, 11/879,680 (07/19/2007). (2nd Int.)
- 14. Aruna Zhamu, Joan Jang, and Bor Z. Jang, "Electrochemical Method of Producing Ultrathin Nano-Scaled Graphene Platelets," US Pat. Pending, 11/881,388 (07/27/2007); Now US Patent No. 8,524,067 (09/03/2013).
- Aruna Zhamu and Bor Z. Jang, "Electrochemical Method of Producing Nano Graphene Platelets," US Pat. Application No. 13/987,362 (07/17/2013); a divisional of US Pat. Appl. No. 11/881,388 (07/27/2007).
- Aruna Zham and Bor Z. Jang, "Environmentally Benign Chemical Method of Producing Exfoliated Graphite, Flexible Graphite, and Nano-Scaled Graphene Platelets," US Pat.

- Pending, 11/881,389 (07/27/2007).
- Aruna Zham and Bor Z. Jang, "Environmentally Benign Graphite Intercalation Compound Composition for Exfoliated Graphite, Flexible Graphite, and Nano-Scaled Graphene Platelets," US Pat. Pending, 11/881,390 (07/27/2007).
- 18. Aruna Zhamu, Jiusheng Guo, and Bor Z. Jang, "Method of Producing Nano-Scaled Graphene Platelets with a High Length-to-Width Ratio," US Pat. App. No. 12/002,278 (12/17/2007); Now US Patent No.7,790,285 (09/07/2010).
- 19. Aruna Zhamu, Jiusheng Guo, and Bor Z. Jang, "Production of Ultra-thin Nano-Scaled Graphene Platelets from Meso-Carbon Micro-Beads," US Pat. Appl No. 12/005,015 (12/26/2007).
- Bor Z. Jang and A. Zhamu, "Nano Graphene Platelet-Based Conductive Inks," US Pat. Application No. 12/215,813 (07/01/2008).
- Bor Z. Jang and A. Zhamu, "Process for Producing Dispersible Nano Graphene Platelets from Non-oxidized Graphitic Materials," US Pat. Application No. 12/231,411 (09/03/2008); now US Patent No. 8,216,541 (07/10/2012).
- Bor Z. Jang and A. Zhamu, "Process for Producing Dispersible Nano Graphene Platelets from Oxidized Graphite," US Pat. Application No. 12/231,413 (09/03/2008); Now US Patent No. 8,114,375 (02/14/2012).
- 23. Bor Z. Jang and A. Zhamu, "Dispersible Nano Graphene Platelets," US Pat. Application No. 12/231,417 (09/03/2008); Now US Patent No. 8,501,318 (08/06/2013).
- Aruna Zhamu and Bor Z. Jang, "Supercritical Fluid Process for Producing Nano Graphene Platelets," US Pat. App. No. 12/229,493 (08/25/2008).
- A. Zhamu and Bor Z. Jang, "Nano Graphene-Modified Curing Agents for Thermoset Resins," US Pat. Application No. 12/460,663 (07/23/2009).
- A. Zhamu and Bor Z. Jang, "Mass Production of Pristine Nano Graphene Materials," US Pat. Application No. 12/460,863 (07/27/2009); now US Patent No. 8,226,801 (07/24/2012).
- A. Zhamu and Bor Z. Jang, "Production of Chemically Functionalized Nano Graphene Materials," US Pat. Application No. 12/460,860 (07/27/2009); Now US Patent No. 8,287,699 (10/16/2012)
- A. Zhamu and Bor Z. Jang, "Production Process for Chemically Functionalized Nano Graphene Materials," US Pat. Application No. 13/573,259 (09/06/2012); a 1st divisional of US Pat. Appl. No. 12/460,860 (07/27/2009).
- 29. A. Zhamu and Bor Z. Jang, "Process for Producing Chemically Functionalized Nano Graphene Materials," US Pat. Application No. 13/573,260 (09/06/2012); a 2nd divisional of US Pat. Appl. No. 12/460,860 (07/27/2009).
- A. Zhamu and Bor Z. Jang, "Nano Graphene Modified Lubricant," US Pat. Application No. 12/583,320 (08/19/2009); now US Patent No. 8,222,190 (07/17/2012).
- 31. A. Zhamu and Bor Z. Jang, "Pristine Nano Graphene Modified Tires," US Pat. Application No. 12/583,375 (08/20/2009); now US Patent No. 7,999,027 (08/16/2011).
- A. Zhamu and Bor Z. Jang, "Submicron-scale Graphitic Fibrils, Methods for Producing Same, and Compositions Containing Same," US Pat. Application No. 12/592,970 (12/07/2009).
- A. Zhamu and Bor Z. Jang, "Conductive Graphene Polymer Binder for Electrochemical Cell Electrodes," US Pat. Application No. 12/655,172 (12/24/2009); PCT Application, WO 2011/079238.

- 34. A. Zhamu and Bor Z. Jang, "Submicron-scale and Lower-Micron Graphitic Fibrils As an Anode Active Material for a Lithium Ion Battery," US Pat. Application No. 12/803,750 (07/06/2010); Now US Patent No. 8,501,348 (08/06/2013).
- 35. A. Zhamu and Bor Z. Jang, "Chemically Functionalized Submicron Graphitic Fibrils, Methods for Producing Same, and Compositions Containing Same," US Pat. Application No. 12/804,190 (07/16/2010).
- Zhenning Yu, Chen-guang Liu, A. Zhamu, and B. Z. Jang, "Curved Nano Graphene Sheets," US patent application submitted 08/02/2010.
- 37. A. Zhamu and Bor Z. Jang, "One-Step Production of Graphene Materials," US Pat. Application No. 13/317,100 (10/11/2011).
- 38. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Graphene Oxide Gel Bonded Graphene Composite Films and Processes for Producing Same," US Patent Application No. 13/385,813 (03/08/2012).
- Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Thermal Management System Containing an Integrated Graphene Film for Electronic Devices," US Patent Appl. No. 13/506,265 (04/09/2012).
- Mingchao Wang, Wei Xiong, Aruna Zhamu, and Bor Z. Jang, "Integrated Graphene Film Heat Spreader for Display Devices," US Patent Application No. 13/507,167 (06/11/2012).
- Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Graphene Oxide-Coated Graphitic Foil and Processes for Producing Same," US Patent Application No. 13/694,161 (11/02/2012).
- Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Thermal Management System Containing a Graphene Oxide-Coated Graphitic Foil Laminate for Electronic Device Application," US Patent Application No. 13/694,162 (11/02/2012).
- 43. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Unitary Graphene Layer or Graphene Single Crystal," US Patent Application No. 13/694,356 (11/26/2012).
- Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Unitary Graphene Matrix Composites Containing Carbon or Graphite Fillers," US Patent Application No. 13/694,468 (12/05/2012).
- Aruna Zhamu, Yi-jun Lin, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Unitary Graphene Material-Based Integrated Finned Heat Sink," US Patent Application No. 13/694,791 (01/07/2013).
- 46. Aruna Zhamu and Bor Z. Jang, "Graphene Composite Handheld and Hand-heated Thawing Tool," US Patent Application No. 13/694,722 (12/28/2012). (Personal patent application)
- 47. Aruna Zhamu, Yi-jun Lin, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Inorganic Coating-Protected Unitary Graphene Materials for Concentrated Photovoltaic Applications," US Patent Application No. 13/815,100/ (01/31/2013).
- 48. Yi-jun Lin, Aruna Zhamu, and Bor Z. Jang, "Nano Graphene Platelet-Reinforced Composite Heat Sinks and Process for Producing Same," US Patent Application No. 13/815,246 (02/14/2013).
- Yi-jun Lin, Aruna Zhamu, and Bor Z. Jang, "Highly Conducting and Transparent Film and Process for Producing Same," US Patent Application No. 13/815,316 (02/21/2013)
- 50. Yi-jun Lin, Aruna Zhamu, and Bor Z. Jang, "Process for Producing Highly Conducting and Transparent Films from Graphene Oxide-Metal Nanowire Hybrid Materials," US

- Patent Application No. 13/815,317 (02/21/2013).
- Aruna Zhamu, Mingchao Wang, Lucy Fu, and Bor Z. Jang, "Process for Producing Unitary Graphene Materials," US Patent Application No. 13/815,349 (02/25/2013).
- 52. Aruna Zhamu, Yi-jun Lin, and Bor Z. Jang, "Method for Producing Conducting and Transparent Films from Combined Graphene and Conductive Nano Filaments," US Patent Application No. 13/815,730 (03/14/2013).
- 53. Yi-jun Lin, Shaio-yen Lee, Jui-Chi Lin, Aruna Zhamu, and Bor Z. Jang, "Ultrasonic Spray Coating of Conducting and Transparent Films from Combined Graphene and Conductive Nano Filaments," US Patent Application No. 13/815,729 (03/14/2013).
- 54. Aruna Zhamu and Bor Z. Jang, "Continuous Graphitic Fibers from Living Graphene Molecules," US Patent Application No. 13/986,223 (04/15/2013).
- 55. Aruna Zhamu and Bor Z. Jang, "Process for Producing Continuous Graphitic Fibers from Living Graphene Molecules," US Patent Application No. 13/986,208 (04/15/2013).
- Aruna Zhamu and Bor Z. Jang, "Impregnated Continuous Graphitic Fiber Tows and Composites Containing Same," US Patent Application No. 13/987,528 (08/05/2013).
- 57. Aruna Zhamu and Bor Z. Jang, "Fabric of Continuous Graphitic Fiber Yarns from Living Graphene Molecules," US Patent Application No. 13/987,529 (08/05/2013).
- A. Zhamu, Jiusheng Guo, and B. Z. Jang, "Self-humidifying Membrane, Catalyst-Coated Membrane, Membrane Electrode Assembly, and Fuel Cell," US Patent Pending, 11/257,601 (10/26/2005).
- Jiusheng Guo, A. Zhamu, and B. Z. Jang, "Organic Vapor Fuel Cell," US Pat. Pending 11/257,528 (10/26/2005).
- A. Zhamu and B. Z. Jang, "Method of Manufacturing Integrated Bipolar Plate/Diffuser Components for Proton Exchange Membrane Fuel Cells," U.S. Pat. Pending, 11/293,690 (12/05/2005).
- 61. A. Zhamu and B. Z. Jang, "Integrated Bipolar Plate/Diffuser Components for Proton Exchange Membrane Fuel Cells," U.S. Pat. Pending, 11/293,706 (12/05//2005).
- 62. Bor Z. Jang, A. Zhamu, Lulu Song, "Method for Producing Highly Conductive Sheet Molding Compound, Fuel cell Flow Field Plate, and Bipolar Plate," U.S. Pat. Pending, 11/293,541 (12/05//2005).
- 63. Bor Z. Jang, A. Zhamu, and Lulu Song, "Highly Conductive Composites for Fuel Cell Flow Field Plates and Bipolar Plates," U.S. Pat. Pending, 11/324,370 (01/04/06). (Also US Patent Application No. 13/021,041 filed Feb 4, 2011)
- 64. Lulu Song, Jiusheng Guo, A. Zhamu, and Bor Z. Jang, "Highly Conductive Nano-scaled Graphene Plate Nanocomposites and Products" US Patent No. 7,566,410 (07/28/2009). (US 11/328,880 (01/11/06)).
- 65. Lulu Song, Jiusheng Guo, A. Zhamu, and Bor Z. Jang, "Controlled Release Vapor Fuel Cell" US Pat Application No. 11/353,463 (02/15/06); now US Patent No. 8,153,324 (04/10/2012).
- Lulu Song, A. Zhamu, Jiusheng Guo, and B. Z. Jang "Nano-scaled Graphene Plate Nanocomposites for Supercapacitor Electrodes" US Pat. No. 7,623,340 (11/24/2009).
- 67. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Dissolved Fuel Direct Alcohol Fuel Cell," US Pat. Pending, 11/515,340 (09/05/2006).
- 68. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Process for Producing Fuel Cell Electrode, Catalyst-Coated Electrode, and Membrane-Electrode Assembly," US Pat. App. No. 11/522,580 (09/19/2006); now US Patent No. 8,318,385 (11/27/2012).

- Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Electro-catalyst Composition, Fuel Cell Electrode, and Membrane-Electrode Assembly," US Pat. App. No. 11/518,565 (09/11/2006); Now US Patent No. 7,722, 981 (05/25/2010).
- 70. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Electro-catalyst Compositions for Fuel Cells," US Pat. Pending 11/582,912 (10/19/2006).
- Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Fuel Cell Electro-catalyst Composite Composition, Electrode, Catalyst-Coated Electrode, and Membrane-Electrode Assembly," US Pat. Pending, 11/699,176 (01/30/2007).
- 72. Bor Z. Jang and Aruna Zhamu, "Conducting Polymer-Transition Metal Electro-catalyst Compositions for Fuel Cells," US Pat. Pending, 11/704,873 (02/12/2007).
- 73. Bor Z. Jang and Aruna Zhamu, "Method of Producing Conducting Polymer-Transition Metal Electro-catalyst Compositions for Fuel Cells," US Pat. Pending, 11/879,679 (07/19/2007); now US Patent No. 7,785,498 (Aug. 31, 2010).
- 74. Bor Z. Jang and Aruna Zhamu, "Home Hydrogen Fueling Station," US Pat. Pending 11/636,666 (12/11/2006).
- Bor Z. Jang and Aruna Zhamu, "Hydrogen Generation and Storage Method for Personal Transportation Applications," US Pat. Pending, 11/636,706 (12/11/2006).
- 76. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Process for Producing Carbon-Cladded Composite Bipolar Plates for Fuel Cells," US Pat. Pending, 11/644,477 (12/26/2006).
- 77. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Carbon-Cladded Composite Flow Field Plate, Bipolar Plate, and Fuel Cell," US Pat. Pending, 11/644,122 (12/26/2006).
- 78. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Highly Conductive, Multi-layer Precursor Composite Composition to Fuel Cell Flow Field Plate or Bipolar Plate," US Pat. Pending, 11/715,786 (03/09/2007).
- Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Exfoliated Graphite Composite Compositions for Fuel Cell Flow Field Plates," US Pat. Pending, 11/800,729 (05/08/2007).
- 80. Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Method of Producing Exfoliated Graphite Composite Compositions for Fuel Cell Flow Field Plates," US Pat. Pending, 11/800,730 (05/08/2007).
- 81. Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Laminated Exfoliated Graphite Composite-Metal Compositions for Fuel Cell Flow Field Plate or Bipolar Plate Applications," US Pat. Pending 11/807,379 (05/29/2007).
- 82. Bor Z. Jang, Aruna Zhamu, Jinjun Shi, and Jiusheng Guo, "Carbon Anode Compositions for Lithium Ion Batteries," US Pat. Appl. No. 11/893,398 (08/17/2007).
- 83. Bor Z. Jang and Aruna Zhamu, "Process for Producing Carbon Anode Compositions for Lithium Ion Batteries," US Pat. Appl. No. 11/906,984 (10/05/2007); Now US Patent No. 7,993,780 (08/09/2011).
- 84. Aruna Zhamu and Bor Z. Jang, "Graphite-Carbon Composite Electrodes for Supercapacitors" US Pat. App. No. 11/895,657 (08/27/2007); Now US Patent No. 7,948,739 (05/24/2011).
- Aruna Zhamu and Bor Z. Jang, "Method of Producing Graphite-Carbon Composite Electrodes for Supercapacitors" US Pat. Appl. No. 11/895,588 (08/27/2007); Now US Patent No. 8,497,225 (07/30/2013).

- Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Recompressed Exfoliated Graphite Articles," US Pat. Pending, 11/899,009 (09/04/2007); Now US Patent No. 8,501,307 (08/06/2013).
- Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Method of Producing Less Anisotropic Flexible Graphite," US Pat. Pending, 11/899,008 (09/04/2007).
- 88. Jinjun Shi, Aruna Zhamu, Jiusheng Guo and Bor Z. Jang, "Method of Continuously Producing Laminated Exfoliated Graphite Composite-Metal Compositions for Fuel Cell Flow Field Plate Applications," US Pat. Appl. No. 12/002,279, (12/17/2007).
- 89. Jinjun Shi, Aruna Zhamu, Jiusheng Guo and Bor Z. Jang, "Continuous Production of Exfoliated Graphite Composite Compositions and Flow Field Plates," US Pat. Pending, 11/901,227 (09/17/2007); now US Patent No. 7,758,783 (July 20, 2010).
- 90. Aruna Zhamu and Bor Z. Jang, "Process for Producing Nano-scaled Graphene Platelet Nanocomposite Electrodes for Supercapacitors," U.S. Patent App. No. 11/906,786 (submitted 10/04/2007); now US Patent No. 7,875,219 (01/25/2011).
- 91. Aruna Zhamu and Bor Z. Jang, "Hybrid Anode Compositions for Lithium Ion Batteries," U.S. Patent App. No. 11/982,662 (11/05/2007); Now US Patent No. 8,119,288 (02/21/2012).
- 92. Aruna Zhamu and Bor Z. Jang, "Nano Graphene Platelet-Based Composite Anode Compositions for Lithium Ion Batteries," U.S. Patent App. No. 11/982,672 (11/05/2007). Now US Patent No. 7,745,047 (06/29/2010); International Patent Application: PCT/US2008/082183.
- 93. Aruna Zhamu and Bor Z. Jang, "Anode Protective Layer Compositions for Lithium Metal Batteries," U.S. Patent App. No. 12/001,981 (12/14/2007).
- 94. Aruna Zhamu and Bor Z. Jang, "Mixed Nano Filament Electrode Materials for Lithium Ion Batteries," U.S. Patent App. No. 12/008,118 (01/09/2008); Now US Patent No. 8,435,676 (05/07/2013).
- 95. Aruna Zhamu and Bor Z. Jang, "Hybrid Nano Filament Anode Compositions for Lithium Ion Batteries," U.S. Patent App. No. 12/006,209 (01/02/2008).
- 96. Aruna Zhamu and Bor Z. Jang, "Hybrid Nano Filament Cathode Compositions for Lithium Ion and Lithium Metal Batteries," U.S. Patent Appl. No. 12/009,259 (01/18/2008). (nano filaments + cathode coating)
- 97. Aruna Zhamu and Bor Z. Jang, "Method of Producing Hybrid Nano Filament Electrodes for Lithium Metal or Lithium Ion Batteries," U.S. Patent Appl. No. 12/077,520 (03/20/2008). (electro-spun fibers + coating of anode or cathode)
- 98. Aruna Zhamu and Bor Z. Jang, "Process for Producing Hybrid Nano Filament Electrodes for Lithium Batteries," U.S. Patent Appl. No. 12/150,096 (04/25/2008). (nano-wires)
- 99. Jinjun Shi, Aruna Zhamu and Bor Z. Jang, "Conductive Nanocomposite-based Electrodes for Lithium Batteries," U.S. Patent Appl. No. 12/156,644 (06/04/2008). (3-D network + anode or cathode active particles + conductive binder)
- 100. Aruna Zhamu and Bor Z. Jang, "Graphene Nanocomposites for Electrochemical cell Electrodes," U.S. Patent Appl. No. 12/220,651 (07/28/2008). (re-constituted graphene sheets)
- 101. Aruna Zhamu and Bor Z. Jang, "Method of Producing A Prelithiated Anode for Secondary Lithium Ion Battery," US Pat. Appl. No. 12/291,689 (11/13/2008); Now US Patent No. 8,158,282 (04/17/2012).

- 102. Aruna Zhamu and Bor Z. Jang, "Secondary Lithium Ion Battery Containing A Prelithiated Anode," US Pat. Appl. No. 12/319,114 (01/02/2009); now US Patent No. 8,241,793 (08/14/2012).
- Aruna Zhamu, Bor Z. Jang, and Jinjun Shi, "Nano Graphene Reinforced Nanocomposite for Lithium Battery Electrodes," US Patent Application No. 12/315,555(12/04/2008). (NGP + active particle + matrix)
- 104. Aruna Zhamu, Bor Z. Jang, and Jinjun Shi, "Process for Producing Nano Graphene Reinforced Nanocomposite for Lithium Battery Electrodes," US Patent Application No. 12/319,812 (01/13/2009).
- 105. Aruna Zhamu and Bor Z. Jang, "Nano-structured Anode Compositions for Lithium Metal and Lithium-Air Secondary Batteries," US Pat. Appl. No. 12/589,999 (11/02/2009); Now US Patent No. 8,236,452 (08/07/2012). (Stabilized Li particles)
- 106. Aruna Zhamu and Bor Z. Jang, "Anode Compositions for Lithium Secondary Batteries," US Pat. Appl. No. 12/655,746 (01/07/2010). (Li foil)
- 107. Aruna Zhamu, Zhenning Yu, and Bor Z. Jang, "Lithium Metal-Sulfur and Lithium Ion-Sulfur Secondary Batteries Containing a Nano-structured Cathode and Processes for Producing Same," US Patent Application No. 12/655,597 (01/04/2010).
- 108. Aruna Zhamu, Zhenning Yu, C, G. Liu, and Bor Z. Jang, "Spacer-Modified Nano Graphene Electrodes for Supercapacitors," US Patent Application No. 12/655,247 (12/28/2009); now US Patent No. 8,315,039 (11/20/2012).
- 109. Aruna Zhamu, Zhenning Yu, C, G. Liu, and Bor Z. Jang, "Spacer-Modified Nano Graphene Electrodes for Supercapacitors," US Patent Application No. 13/573,844 (10/09/2012); A divisional of US App. No. 12/655,247 (12/28/2009).
- 110. Aruna Zhamu, Zhenning Yu, C, G, Liu, and Bor Z, Jang, "Continuous Process for Producing Spacer-Modified Nano Graphene Electrodes for Supercapacitors," US Patent Application No. 12/655,744 (01/07/2010).
- 111. Zhenning Yu, Jinjun Shi, C. G. Liu, Bor Z. Jang, and Aruna Zhamu "Flexible Asymmetric Electrochemical Cells Using Nano Graphene Platelet as an Electrode Material," US Patent Application No. 12/657,579 (01/25/2010).
- A. Zhamu, Jinjun Shi, Guorong Chen, Qing Fang, M. C. Wang, and B. Z. Jang, "Graphite and Carbon Particulates for the Lithium Ion Battery," US Patent Application No. 12/804,413 (07/22/2010).
- Zhenning Yu, Chen-guang Liu, David Neff, A. Zhamu, and B. Z. Jang, "Supercapacitor with a Meso-porous Nano Graphene Electrode," US Patent Application No. 12/804,911 (08/02/2010).
- C. G. Liu, David Neff, Zhenning Yu, Aruna Zhamu, and Bor Z. Jang, "Lithium Superbattery with a Functionalized Nano Graphene Cathode," US Patent Application No. 12/806,679 (08/19/2010).
- C. G. Liu, David Neff, Aruna Zhamu, and Bor Z. Jang, "Lithium Super-battery with a Functionalized Disordered Carbon Cathode," US Patent Application No. 12/924,211 (09/23/2010).
- 116. Aruna Zhamu, Jinjun Shi, Guorong Chen, M. C. Wang, and Bor Z. Jang, "Graphene-Enhanced Cathode Particulates for Lithium Batteries," US Patent Application No. 12/807,471 (09/07/2010).

- 117. Aruna Zhamu, Jinjun Shi, Guorong Chen, Qing Fang, and Bor Z. Jang, "Graphene-Enhanced Anode Particulates for Lithium Batteries," US Patent Application No. 12/807,635 (09/10/2010).
- Aruna Zhamu, C. G. Liu, David Neff, and Bor Z. Jang, "Surface-Controlled Lithium Ion-Exchanging Energy Storage Device," US Patent Application No. 12/928,927 (12/23/2010).
- Aruna Zhamu, C. G. Liu, David Neff, Z. Yu, and Bor Z. Jang, "Partially and Fully Surface-Enabled Metal Ion-Exchanging Battery Device," US Patent Application No. 12/930,294 (01/03/2011).
- Guorong Chen, Aruna Zhamu, Zhenning Yu, and B. Z. Jang, "Graphene-Enabled Vanadium Oxide Cathode and Lithium Cells Containing Same," US Patent Application No. 13/134,782 (06/17/2011).
- Aruna Zhamu, Yanbo Wang, and Bor Z. Jang, "Prelithiated Current Collector and Secondary Lithium Cells Containing Same," US Patent Application No. 13/199,058; 08/19/2011.
- 122. Aruna Zhamu, Chen-guang Liu, X. Q. Wang, and Bor Z. Jang, "Surface-Mediated Lithium Ion-Exchanging Energy Storage Device," US Patent Application No. 13/199,450 (08/30/2011).
- Aruna Zhamu, Chen-guang Liu, and Bor Z. Jang, "Partially Surface-Mediated Lithium Ion-Exchanging Cells and Method of Operating Same," US Patent Application No. 13/199,713 (09/07/2011).
- 124. Aruna Zhamu, Guorong Chen, X. Q. Wang, Yanbo Wang, and B. Z. Jang, "Stacks of Internally Connected Surface-Mediated Cells and Methods of Operating Same," US Patent Application No. 13/374,321 (12/21/2011).
- 125. Aruna Zhamu, Guorong Chen, X. Q. Wang, Yanbo Wang, and B. Z. Jang, "Hybrid Electrode and Surface-Mediated Cell-based Super-Hybrid Energy Storage Device Containing Same," US Patent Application No. 13/374,408 (12/29/2011).
- 126. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Powered Vehicles and Methods of Operating Same," US Patent App. No. 13/374,894 (01/23/2012).
- 127. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cells with High Power Density and High energy Density," US Patent App. No. 13/385,105 (02/03/2012).
- 128. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Powered Portable Computing Devices and Methods of Operating Same," US Patent Application No. 13/385,245 (02/10/2012).
- 129. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Driven Power Tools and Methods of Operating Same," US Patent Application No. 13/385,350 (02/16/2012).
- 130. Yanbo Wang, Zhenning Yu, Aruna Zhamu, Guorong Chen, and Bor Z. Jang, "Inorganic Nano Sheet-Enabled Lithium-Exchanging Surface-Mediated Cells," US Patent Application No. 13/385,366 (02/16/2012).
- 131. Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-ion Cell Having a High-Capacity Anode and a High-Capacity Cathode" US Patent Application No. 13/385,561 (2/27/2012).

- 132. Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang. "Lithium-ion Cell Having a High Energy Density and High Power Density" US Patent Application No. 13/506,168 (04/02/2012).
- Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang, "Method of Operating a Lithium-ion Cell Having a High-Capacity Cathode" US Patent Application No. 13/506,324 (04/12/2012).
- 134. Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Magnesium-Ion Cell Having a High-Capacity Cathode," US Patent Appl. No. 13/506,736 (05/14/2012).
- 135. Guorong Chen, Yanbo Wang, Qing Fang, Aruna Zhamu, and Bor Z. Jang, "Dual Electroplating Cell," US Patent Appl. No. 13/507,057 (06/01/2012).
- 136. Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Phthalocyanine-Based High-Capacity Cathode," US Patent Appl. No. 13/506,778 (05/17/2012).
- 137. Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Meso-Porous Conductive Material Structure-Supported Phthalocyanine Compound Cathode," US Patent Appl. No. 13/507,168 (06/11/2012).
- 138. C. G. Liu, Guorong Chen, Aruna Zhamu, and Bor Z. Jang, "Supercapacitor Having a Porous Carbon/Graphite Material-Supported Phthalocyanine Compound Electrode," US Patent Appl. No. (05/15/2013).
- 139. Mingchao Wang, Guorong Chen, Aruna Zhamu, and Bor Z. Jang, "Solvent-Free Process Based Graphene Electrode for Energy Storage Devices," US Patent Application No. 13/507,739 (07/25/2012).
- 140. Guorong Chen, Zhenning Yu, Chen-guang Liu, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Chemically Bonded Phthalocyanine Compound Cathode," US Patent Application No. 13/573,275 (09/07/2012).
- Guorong Chen, Aruna Zhamu, and Bor Z. Jang, "Encapsulated Phthalocyanine Particles, High-Capacity Cathode Containing These Particles, and Rechargeable Lithium Cell Containing Such a Cathode," US Patent Application No. 13/573,298 (09/10/2012).
- 142. Yanbo Wang, Hui He, Aruna Zhamu, Yi-jun Lin, and Bor Z. Jang, "Rechargeable Lithium-Sulfur Battery Having a High Capacity and Long Cycle Life," US Patent Application No. 13/986,319 (04/22/2013).
- 143. Hui He, Yanbo Wang, Wei Xiong, Aruna Zhamu, and Bor Z. Jang, "Lithium-Sulfur Secondary Battery Containing Gradient Electrolyte," US Patent Application No. 13/986,575 (05/16/2013).
- 144. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium Secondary Batteries Containing Lithium Salt-Ionic Liquid Solvent Electrolyte," US Patent Application No. 13/986,576 (05/16/2013).
- 145. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium Secondary Batteries Containing a Non-flammable Quasi-solid Electrolyte," US Patent Application No. 13/986,814 (06/10/2013).
- Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Non-flammable Quasi-Solid Electrolyte-Separator Layer Product for Lithium Battery Applications," US Patent Application No. 13/987,394 (07/22/2013).

- 147. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang. "Process for Producing Non-flammable Quasi-Solid Electrolyte and Electrolyte-Separator for Lithium Battery Applications," US Patent Application No. 13/987,396 (07/22/2013).
- 148. Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Method for Mass-Producing Silicon Nano Powder and Graphene-doped Silicon Nano Powder," US Patent Application No. 13/987,450 (07/26/2013).
- 149. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Anode Active Material-Coated Graphene Sheets for Lithium Batteries and Process for Producing Same," US Patent Application No. 13/987,566 (08/08/2013).
- 150. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Anode Containing Active Material-Coated Graphene Sheets and Lithium-ion Batteries Containing Same," US Patent Application No. 13/987,565 (08/08/2013).
- 151. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Cathode Active Material-Coated Discrete Graphene Sheets for Lithium Batteries and Process for Producing Same," US Patent Application No. 13/987,567 (08/08/2013).
- Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Non-flammable Quasi-Solid Electrolyte and Non-lithium Alkali Metal or Alkali-Ion Secondary Batteries Containing Same," US Patent Application No. 13/987,764 (08/30/2013).
- Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-Selenium Secondary Batteries Having Non-flammable Electrolyte," US Patent Application No. 13/987,785 (09/03/2013).
- 154. Aruna Zhamu, Guorong Chen, and Bor Z. Jang, "Large-Grain Graphene Thin Film Current Collector and Secondary Batteries Containing Same," US Patent Application No. 13/987,994 (09/23/2013).

ASSIGNMENT

This Assignment Agreement is made and entered by and between <u>Bor Z. Jang</u>, a citizen of USA, residing at <u>9436 Parkside Drive, Centerville, Ohio</u> (the "Assignor") and Nanotek Instruments, Inc., an Ohio corporation whose address is 1240 McCook Avenue, Dayton, OH 45404 (the "Assignee").

WHEREAS, Assignor is an inventor or co-inventor of certain new and useful inventions related to the production and use of new materials, including nano-scaled graphene plates, processes, energy technologies, and other technologies as more fully described herein (the "Inventions"), and

WHEREAS, Assignee desires to acquire the entire right, title and interest in and to the Inventions.

NOW, THEREFORE, the parties agree as follows:

- 1. The term "Inventions" shall mean (1) the issued United States patents listed in Schedule "A" attached hereto and incorporated herein by reference and all corresponding rights to claim priority, (2) the patent applications listed in Exhibit "A" and any and all improvements which are disclosed in any of the aforesaid patent applications, (3) all Letters Patent to be obtained for said Inventions by the above applications or any continuation, divisional, renewal, or substitute thereof and, as to Letters Patent, any reissue or re-examination thereof, (4) all know-how, trade secrets, discoveries, concepts, ideas, and technologies related to the same, (5) any and all copyrights, copyright registrations and copyrightable subject matter related to the same; and (6) any trademarks related to such patents and patent applications.
- 2. In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration, the receipt of which is acknowledged, the Assignor hereby assigns, transfers and conveys to Assignee all of Assignor's right, title and interest in and to (a) the Inventions, (b) any U.S. or foreign Letters Patent which may issue from the Inventions, and (c) all divisions, continuations, reissues, re-examinations and extensions of the patents and applications listed on Schedule A.
- 3. Assignor further covenants that said Assignee will, upon its request, be provided promptly with all pertinent facts and documents relating to said Inventions and said Letters Patent and legal equivalents, as may be known and accessible to Assignor and he or she will testify as to the same in any interference, litigation or proceeding related thereto and will

instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said Inventions and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purpose thereof. In Witness Whereof, the undersigned has executed this document as of the 36 day of INVENTOR (Signature) Bor Z. Jang (Print Name) State of Ohio County of Montgomery Before me personally appeared said Bor Z. Jang and acknowledged the foregoing instrument to be his free act and deed, this ______ day of __October_ 2013. Notary Public Notary Public, State of Ohio My Comm. Expires June 27, 2017

promptly execute and deliver to said Assignee or its legal representatives any and all papers,

EXHIBIT "A": <u>Assigned Patents</u> Invention Patents and Applications

- 1. Jiusheng Guo, A. Zhamu, and B. Z. Jang, "Nano-scaled Graphene Plate-Reinforced Composite Materials and Method of Producing Same," US Patent No. 7,662,321 (02/16/2010) (US Pat. Appl No.11/257,508 (10/26/05)).
- Jiusheng Guo, A. Zhamu, and B. Z. Jang, "Nano-scaled Graphene Plate-Reinforced Composite Materials and Method of Producing Same," US App. No. 12/639,443 (12/16/2009). A continuation of US Pat. App. No. 11/257,508 (10/26/05)
- 3. B. Z. Jang, A. Zhamu, and Jiusheng Guo, "Electro-spinning of Nano-scaled Graphene Plate Composite," US Pat. Pending, 11/487,761 (07/17/06).
- B. Z. Jang, A. Zhamu, Jiusheng Guo, and Lulu Song "Hybrid Fiber Tow Containing Both Continuous Fibers and Nano-Fillers, Hybrid Composite, and Processes" US Pat. Pending, 11/491,657 (07/24/2006).
- Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Process for Producing Nano-scaled Platelets and Nanocomposites," US Pat. Pending, 11/509,424 (08/25/2006). Gas Exf.
- 6. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Mass Production of Nano-scaled Platelets and Products," US Pat. Appl. No. 11/526,489 (09/26/2006); now US Patent No. 7,785,492 (Aug. 31, 2010).
- B. Z. Jang, A. Zhamu, and L. Song, "Bio-responsive and Electrically Conductive Polymer Compositions for Tissue Engineering and Methods for Production," US Pat. Pending, 11/543413 (10/06/2006).
- Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Method of Producing Nano-scaled Graphene and Inorganic Platelets and Their Nanocomposites," US Pat. Appl. No. 11/709,274 (02/22/2007); Now US Patent No. 7,892,514 (Feb 22, 2011).
- 9. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Method of Producing Nano-scaled Graphene and Inorganic Platelets and Their Nanocomposites," US Pat. App. No. 12/983,947 (01/04/2011), a divisional of 11/709,274 (02/22/2007); now US Patent No. 8,308,984 (11/13/2012).
- Bor Z, Jang, Aruna Zhamu, and Jiusheng Guo, "Nano-scaled Graphene Plate Films and Articles," US Pat. Pending, 11/784,606 (04/09/2007).
- Aruna Zhamu, JinJun Shi, Jiusheng Guo, and Bor Z. Jang, "Low-Temperature Method of Producing Nano-scaled Graphene Platelets and Their Nanocomposites," US Pat. Pending, 11/787,442 (04/17/2007); Now US Patent No. 8,132,746 (03/13/2012).
- 12. Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Method of Producing Exfoliated Graphite, Flexible Graphite, and Nano-Scaled Graphene Plates," US Pat. Pending, 11/800,728 (05/08/2007); now US Patent No. 7,824,651 (11/02/2010).
- 13. Aruna Zhamu, Joan Jang, Jinjun Shi, and Bor Z. Jang, "Method of Producing Ultra-thin Nano-Scaled Graphene Platelets," US Pat, Pending, 11/879,680 (07/19/2007). (2nd Int.)
- 14. Aruna Zhamu, Joan Jang, and Bor Z. Jang, "Electrochemical Method of Producing Ultrathin Nano-Scaled Graphene Platelets," US Pat. Pending, 11/881,388 (07/27/2007); Now US Patent No. 8,524,067 (09/03/2013).
- Aruna Zhamu and Bor Z. Jang, "Electrochemical Method of Producing Nano Graphene Platelets," US Pat. Application No. 13/987,362 (07/17/2013); a divisional of US Pat. Appl. No. 11/881,388 (07/27/2007).
- Aruna Zham and Bor Z. Jang, "Environmentally Benign Chemical Method of Producing Exfoliated Graphite, Flexible Graphite, and Nano-Scaled Graphene Platelets," US Pat.

- Pending, 11/881,389 (07/27/2007).
- 17. Aruna Zham and Bor Z. Jang, "Environmentally Benign Graphite Intercalation Compound Composition for Exfoliated Graphite, Flexible Graphite, and Nano-Scaled Graphene Platelets," US Pat. Pending, 11/881,390 (07/27/2007).
- 18. Aruna Zhamu, Jiusheng Guo, and Bor Z. Jang, "Method of Producing Nano-Scaled Graphene Platelets with a High Length-to-Width Ratio," US Pat. App. No. 12/002,278 (12/17/2007); Now US Patent No.7,790,285 (09/07/2010).
- 19. Aruna Zhamu, Jiusheng Guo, and Bor Z. Jang, "Production of Ultra-thin Nano-Scaled Graphene Platelets from Meso-Carbon Micro-Beads," US Pat. Appl No. 12/005,015 (12/26/2007).
- Bor Z. Jang and A. Zhamu, "Nano Graphene Platelet-Based Conductive Inks," US Pat. Application No. 12/215,813 (07/01/2008).
- 21. Bor Z. Jang and A. Zhamu, "Process for Producing Dispersible Nano Graphene Platelets from Non-oxidized Graphitic Materials," US Pat. Application No. 12/231,411 (09/03/2008); now US Patent No. 8,216,541 (07/10/2012).
- 22. Bor Z. Jang and A. Zhamu, "Process for Producing Dispersible Nano Graphene Platelets from Oxidized Graphite," US Pat. Application No. 12/231,413 (09/03/2008); Now US Patent No. 8,114,375 (02/14/2012).
- Bor Z. Jang and A. Zhamu, "Dispersible Nano Graphene Platelets," US Pat. Application No. 12/231,417 (09/03/2008); Now US Patent No. 8,501,318 (08/06/2013).
- 24. Aruna Zhamu and Bor Z. Jang, "Supercritical Fluid Process for Producing Nano Graphene Platelets," US Pat. App. No. 12/229,493 (08/25/2008).
- 25. A. Zhamu and Bor Z. Jang, "Nano Graphene-Modified Curing Agents for Thermoset Resins," US Pat. Application No. 12/460,663 (07/23/2009).
- 26. A. Zhamu and Bor Z. Jang, "Mass Production of Pristine Nano Graphene Materials," US Pat. Application No. 12/460,863 (07/27/2009); now US Patent No. 8,226,801 (07/24/2012).
- A. Zhamu and Bor Z. Jang, "Production of Chemically Functionalized Nano Graphene Materials," US Pat. Application No. 12/460,860 (07/27/2009); Now US Patent No. 8,287,699 (10/16/2012)
- 28. A. Zhamu and Bor Z. Jang, "Production Process for Chemically Functionalized Nano Graphene Materials," US Pat. Application No. 13/573,259 (09/06/2012); a 1st divisional of US Pat. Appl. No. 12/460,860 (07/27/2009).
- A. Zhamu and Bor Z. Jang, "Process for Producing Chemically Functionalized Nano Graphene Materials," US Pat. Application No. 13/573,260 (09/06/2012); a 2nd divisional of US Pat. Appl. No. 12/460,860 (07/27/2009).
 A. Zhamu and Bor Z. Jang, "None Complete Materials of US Pat. Appl. No. 12/460,860 (07/27/2009).
- A. Zhamu and Bor Z. Jang, "Nano Graphene Modified Lubricant," US Pat. Application No. 12/583,320 (08/19/2009); now US Patent No. 8,222,190 (07/17/2012).
- 31. A. Zhamu and Bor Z. Jang, "Pristine Nano Graphene Modified Tires," US Pat. Application No. 12/583,375 (08/20/2009); now US Patent No. 7,999,027 (08/16/2011).
- 32. A. Zhamu and Bor Z. Jang, "Submicron-scale Graphitic Fibrils, Methods for Producing Same, and Compositions Containing Same," US Pat. Application No. 12/592,970 (12/07/2009).
- A. Zhamu and Bor Z. Jang, "Conductive Graphene Polymer Binder for Electrochemical Cell Electrodes," US Pat. Application No. 12/655,172 (12/24/2009); PCT Application, WO 2011/079238.

- A. Zhamu and Bor Z. Jang, "Submicron-scale and Lower-Micron Graphitic Fibrils As an Anode Active Material for a Lithium Ion Battery," US Pat. Application No. 12/803,750 (07/06/2010); Now US Patent No. 8,501,348 (08/06/2013).
- 35. A. Zhamu and Bor Z. Jang, "Chemically Functionalized Submicron Graphitic Fibrils, Methods for Producing Same, and Compositions Containing Same," US Pat. Application No. 12/804,190 (07/16/2010).
- Zhenning Yu, Chen-guang Liu, A. Zhamu, and B. Z. Jang, "Curved Nano Graphene Sheets," US patent application submitted 08/02/2010.
- 37. A. Zhamu and Bor Z. Jang, "One-Step Production of Graphene Materials," US Pat. Application No. 13/317,100 (10/11/2011).
- 38. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Graphene Oxide Gel Bonded Graphene Composite Films and Processes for Producing Same," US Patent Application No. 13/385,813 (03/08/2012).
- 39. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Thermal Management System Containing an Integrated Graphene Film for Electronic Devices," US Patent Appl. No. 13/506,265 (04/09/2012).
- 40. Mingchao Wang, Wei Xiong, Aruna Zhamu, and Bor Z. Jang, "Integrated Graphene Film Heat Spreader for Display Devices," US Patent Application No. 13/507,167 (06/11/2012).
- Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Graphene Oxide-Coated Graphitic Foil and Processes for Producing Same," US Patent Application No. 13/694,161 (11/02/2012).
- 42. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Thermal Management System Containing a Graphene Oxide-Coated Graphitic Foil Laminate for Electronic Device Application," US Patent Application No. 13/694,162 (11/02/2012).
- 43. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Unitary Graphene Layer or Graphene Single Crystal," US Patent Application No. 13/694,356 (11/26/2012).
- 44. Aruna Zhamu, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Unitary Graphene Matrix Composites Containing Carbon or Graphite Fillers," US Patent Application No. 13/694,468 (12/05/2012).
- Aruna Zhamu, Yi-jun Lin, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Unitary Graphene Material-Based Integrated Finned Heat Sink," US Patent Application No. 13/694,791 (01/07/2013).
- 46. Aruna Zhamu and Bor Z. Jang, "Graphene Composite Handheld and Hand-heated Thawing Tool," US Patent Application No. 13/694,722 (12/28/2012). (Personal patent application)
- 47. Aruna Zhamu, Yi-jun Lin, Mingchao Wang, Wei Xiong, and Bor Z. Jang, "Inorganic Coating-Protected Unitary Graphene Materials for Concentrated Photovoltaic Applications," US Patent Application No. 13/815,100/ (01/31/2013).
- 48. Yi-jun Lin, Aruna Zhamu, and Bor Z. Jang, "Nano Graphene Platelet-Reinforced Composite Heat Sinks and Process for Producing Same," US Patent Application No. 13/815,246 (02/14/2013).
- Yi-jun Lin, Aruna Zhamu, and Bor Z. Jang, "Highly Conducting and Transparent Film and Process for Producing Same," US Patent Application No. 13/815,316 (02/21/2013)
- 50. Yi-jun Lin, Aruna Zhamu, and Bor Z. Jang, "Process for Producing Highly Conducting and Transparent Films from Graphene Oxide-Metal Nanowire Hybrid Materials," US

- Patent Application No. 13/815,317 (02/21/2013).
- Aruna Zhamu, Mingchao Wang, Lucy Fu, and Bor Z. Jang, "Process for Producing Unitary Graphene Materials," US Patent Application No. 13/815,349 (02/25/2013).
 Aruna Zhamu, Vicina Ling and Dec Z. Language Process for Producing Oct.
- Aruna Zhamu, Yi-jun Lin, and Bor Z. Jang, "Method for Producing Conducting and Transparent Films from Combined Graphene and Conductive Nano Filaments," US
 Yi-jun Lin Shaio very Low Ver Classics.
- Yi-jun Lin, Shaio-yen Lee, Jui-Chi Lin, Aruna Zhamu, and Bor Z. Jang, "Ultrasonic Spray Coating of Conducting and Transparent Films from Combined Graphene and Conductive Nano Filaments," US Patent Application No. 13/815,729 (03/14/2013).
 Aruna Zhamu and Bor Z. Jone "Conduction No. 13/815,729 (03/14/2013).
- Aruna Zhamu and Bor Z. Jang, "Continuous Graphitic Fibers from Living Graphene
 Molecules," US Patent Application No. 13/986,223 (04/15/2013).
- 55. Aruna Zhamu and Bor Z. Jang, "Process for Producing Continuous Graphitic Fibers from Living Graphene Molecules," US Patent Application No. 13/986,208 (04/15/2013).
- Aruna Zhamu and Bor Z. Jang, "Impregnated Continuous Graphitic Fiber Tows and Composites Containing Same," US Patent Application No. 13/987,528 (08/05/2013).
 Aruna Zhamu and Bor Z. Jang, "Exclusive Special Continuous Graphitic Fiber Tows and Aruna Zhamu and Bor Z. Jang, "Exclusive Special Continuous Graphitic Fiber Tows and Composites Containing Same," US Patent Application No. 13/987,528 (08/05/2013).
- 57. Aruna Zhamu and Bor Z. Jang, "Fabric of Continuous Graphitic Fiber Yarns from Living Graphene Molecules," US Patent Application No. 13/987,529 (08/05/2013).
- A. Zhamu, Jiusheng Guo, and B. Z. Jang, "Self-humidifying Membrane, Catalyst-Coated Membrane, Membrane Electrode Assembly, and Fuel Cell," US Patent Pending, 11/257,601 (10/26/2005).
- Jinsheng Guo, A. Zhamu, and B. Z. Jang, "Organic Vapor Fuel Cell," US Pat. Pending 11/257,528 (10/26/2005).
 A. Zhangu and B. Z. Jang, "Market J. S.M.
- A. Zhamu and B. Z. Jang, "Method of Manufacturing Integrated Bipolar Plate/Diffuser Components for Proton Exchange Membrane Fuel Cells," U.S. Pat. Pending, 11/293,690 (12/05/2005).
 A. Zhamu and B. Z. Jang, "Integrated ID: 10.000.
- A. Zhamu and B. Z. Jang, "Integrated Bipolar Plate/Diffuser Components for Proton Exchange Membrane Fuel Cells," U.S. Pat. Pending, 11/293,706 (12/05//2005).
 Bor Z. Jano "Short Molding Components of Plate Pla
- Bor Z. Jang, "Sheet Molding Compound Flow Field Plate, Bipolar Plate and Fuel Cell," U.S. Pat. Pending, 11/293,540 (12/05//2005); now US Patent No. 8,518,603 (08/27/2013).
- Bor Z. Jang, A. Zhamu, Lulu Song, "Method for Producing Highly Conductive Sheet Molding Compound, Fuel cell Flow Field Plate, and Bipolar Plate," U.S. Pat. Pending, 11/293,541 (12/05//2005).
- 64. Bor Z. Jang, A. Zhamu, and Lulu Song, "Highly Conductive Composites for Fuel Cell Flow Field Plates and Bipolar Plates," U.S. Pat. Pending, 11/324,370 (01/04/06). (Also US Patent Application No. 13/021.041 filed Feb 4, 2011)
- 65. Lulu Song, Jiusheng Guo, A. Zhamu, and Bor Z. Jang, "Highly Conductive Nano-scaled Graphene Plate Nanocomposites and Products" US Patent No. 7,566,410 (07/28/2009). (US 11/328,880 (01/11/06)).
- 66. Lulu Song, Jiusheng Guo, A. Zhamu, and Bor Z. Jang, "Controlled Release Vapor Fuel Cell" US Pat Application No. 11/353,463 (02/15/06); now US Patent No. 8,153,324 (04/10/2012).
- 67. Lulu Song, A. Zhamu, Jiusheng Guo, and B. Z. Jang "Nano-scaled Graphene Plate Nanocomposites for Supercapacitor Electrodes" US Pat. No. 7,623,340 (11/24/2009).
- 68. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Dissolved Fuel Direct Alcohol Fuel Cell," US Pat. Pending, 11/515,340 (09/05/2006).

- 69. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Process for Producing Fuel Cell Electrode, Catalyst-Coated Electrode, and Membrane-Electrode Assembly," US Pat. App. No. 11/522,580 (09/19/2006); now US Patent No. 8,318,385 (11/27/2012).
- 70. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Electro-catalyst Composition, Fuel Cell Electrode, and Membrane-Electrode Assembly," US Pat. App. No. 11/518,565 (09/11/2006); Now US Patent No. 7,722, 981 (05/25/2010).
- 71. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Electro-catalyst Compositions for Fuel Cells," US Pat. Pending 11/582,912 (10/19/2006).
- 72. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Fuel Cell Electro-catalyst Composite Composition, Electrode, Catalyst-Coated Electrode, and Membrane-Electrode Assembly," US Pat. Pending, 11/699,176 (01/30/2007).

 73. Bor Z. Jang and Armo Zi. 460.
- 73. Bor Z. Jang and Aruna Zhamu, "Conducting Polymer-Transition Metal Electro-catalyst Compositions for Fuel Cells," US Pat. Pending, 11/704,873 (02/12/2007).
 74. Bor Z. Jang and Aruna Zhamu (SAA)
- 74. Bor Z. Jang and Aruna Zhamu, "Method of Producing Conducting Polymer-Transition Metal Electro-catalyst Compositions for Fuel Cells," US Pat. Pending, 11/879,679 (07/19/2007); now US Patent No. 7,785,498 (Aug. 31, 2010).
- 75. Bor Z. Jang and Aruna Zhamu, "Home Hydrogen Fueling Station," US Pat. Pending 11/636,666 (12/11/2006).

 76. Bor Z. Jang and Aruna Zhama (17)
- 76. Bor Z. Jang and Aruna Zhamu, "Hydrogen Generation and Storage Method for Personal Transportation Applications," US Pat. Pending, 11/636,706 (12/11/2006).
- 77. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Process for Producing Carbon-Cladded Composite Bipolar Plates for Fuel Cells," US Pat. Pending, 11/644,477 (12/26/2006).

 78. Bor Z. Jang, Aruna Zhamu, and Bushan Composite Bipolar Plates for Fuel Cells, "US Pat. Pending, 11/644,477 (12/26/2006).
- 78. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Carbon-Cladded Composite Flow Field Plate, Bipolar Plate, and Fuel Cell," US Pat. Pending, 11/644,122 (12/26/2006).
- 79. Bor Z. Jang, Aruna Zhamu, and Jiusheng Guo, "Highly Conductive, Multi-layer Precursor Composite Composition to Fuel Cell Flow Field Plate or Bipolar Plate," US Pat. Pending, 11/715,786 (03/09/2007).
- 80. Ian M. Fuller and Bor Z. Jang, "Method of Storing and Generating Hydrogen for Fuel Cell Applications" US Pat. Pending, 11/784,440 (04/17/2007).
- Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Exfoliated Graphite Composite Compositions for Fuel Cell Flow Field Plates," US Pat. Pending, 11/800,729 (05/08/2007).
- Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Method of Producing Exfoliated Graphite Composite Compositions for Fuel Cell Flow Field Plates," US Pat. Pending, 11/800,730 (05/08/2007).
- 83. Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Laminated Exfoliated Graphite Composite-Metal Compositions for Fuel Cell Flow Field Plate or Bipolar Plate Applications," US Pat. Pending 11/807,379 (05/29/2007).
- 84. Bor Z. Jang, Aruna Zhamu, Jinjun Shi, and Jiusheng Guo, "Carbon Anode Compositions for Lithium Ion Batteries," US Pat. Appl. No. 11/893,398 (08/17/2007).
- 85. Bor Z. Jang and Aruna Zhamu, "Process for Producing Carbon Anode Compositions for Lithium Ion Batteries," US Pat. Appl. No. 11/906,984 (10/05/2007); Now US Patent No. 7,993,780 (08/09/2011).

- 86. Aruna Zhamu and Bor Z. Jang, "Graphite-Carbon Composite Electrodes for Supercapacitors" US Pat. App. No. 11/895,657 (08/27/2007); Now US Patent No. 7,948,739 (05/24/2011).
- Aruna Zhamu and Bor Z. Jang, "Method of Producing Graphite-Carbon Composite Electrodes for Supercapacitors" US Pat. Appl. No. 11/895,588 (08/27/2007); Now US Patent No. 8,497,225 (07/30/2013).
- 88. Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Recompressed Exfoliated Graphite Articles," US Pat. Pending, 11/899,009 (09/04/2007); Now US Patent No. 8,501,307 (08/06/2013).
- Aruna Zhamu, Jinjun Shi, Jiusheng Guo and Bor Z. Jang, "Method of Producing Less Anisotropic Flexible Graphite," US Pat. Pending, 11/899,008 (09/04/2007).
- 90. Jinjun Shi, Aruna Zhamu, Jiusheng Guo and Bor Z. Jang, "Method of Continuously Producing Laminated Exfoliated Graphite Composite-Metal Compositions for Fuel Cell Flow Field Plate Applications," US Pat. Appl. No. 12/002,279, (12/17/2007).
- Jinjun Shi, Aruna Zhamu, Jiusheng Guo and Bor Z. Jang, "Continuous Production of Exfoliated Graphite Composite Compositions and Flow Field Plates," US Pat. Pending, 11/901,227 (09/17/2007); now US Patent No. 7,758,783 (July 20, 2010).
- 92. Aruna Zhamu and Bor Z. Jang, "Process for Producing Nano-scaled Graphene Platelet Nanocomposite Electrodes for Supercapacitors," U.S. Patent App. No. 11/906,786 (submitted 10/04/2007); now US Patent No. 7,875,219 (01/25/2011).
- 93. Aruna Zhamu and Bor Z. Jang, "Hybrid Anode Compositions for Lithium Ion Batteries," U.S. Patent App. No. 11/982,662 (11/05/2007); Now US Patent No. 8,119,288 (02/21/2012).
- 94. Aruna Zhamu and Bor Z. Jang, "Nano Graphene Platelet-Based Composite Anode Compositions for Lithium Ion Batteries," U.S. Patent App. No. 11/982,672 (11/05/2007). Now US Patent No. 7,745,047 (06/29/2010); International Patent Application: PCT/US2008/082183.
- 95. Aruna Zhamu and Bor Z. Jang, "Anode Protective Layer Compositions for Lithium Metal Batteries," U.S. Patent App. No. 12/001,981 (12/14/2007).
- 96. Aruna Zhamu and Bor Z. Jang, "Mixed Nano Filament Electrode Materials for Lithium Ion Batteries," U.S. Patent App. No. 12/008,118 (01/09/2008); Now US Patent No. 8,435,676 (05/07/2013).
- 97. Aruna Zhamu and Bor Z. Jang, "Hybrid Nano Filament Anode Compositions for Lithium Ion Batteries," U.S. Patent App. No. 12/006,209 (01/02/2008).
- 98. Aruna Zhamu and Bor Z. Jang, "Hybrid Nano Filament Cathode Compositions for Lithium Ion and Lithium Metal Batteries," U.S. Patent Appl. No. 12/009,259 (01/18/2008). (nano filaments + cathode coating)
- 99. Aruna Zhamu and Bor Z. Jang, "Method of Producing Hybrid Nano Filament Electrodes for Lithium Metal or Lithium Ion Batteries," U.S. Patent Appl. No. 12/077,520 (03/20/2008). (electro-spun fibers + coating of anode or cathode)
- 100. Aruna Zhamu and Bor Z. Jang, "Process for Producing Hybrid Nano Filament Electrodes for Lithium Batteries," U.S. Patent Appl. No. 12/150,096 (04/25/2008). (nano-wires)
- 101. Jinjun Shi, Aruna Zhamu and Bor Z. Jang, "Conductive Nanocomposite-based Electrodes for Lithium Batteries," U.S. Patent Appl. No. 12/156,644 (06/04/2008). (3-D network + anode or cathode active particles + conductive binder)

Š

- Aruna Zhamu and Bor Z. Jang, "Graphene Nanocomposites for Electrochemical cell Electrodes," U.S. Patent Appl. No. 12/220,651 (07/28/2008). (re-constituted graphene sheets)
- 103. Aruna Zhamu and Bor Z. Jang, "Method of Producing A Prelithiated Anode for Secondary Lithium Ion Battery," US Pat. Appl. No. 12/291,689 (11/13/2008); Now US Patent No. 8,158,282 (04/17/2012).
- 104. Aruna Zhamu and Bor Z. Jang, "Secondary Lithium Ion Battery Containing A Prelithiated Anode," US Pat. Appl. No. 12/319,114 (01/02/2009); now US Patent No. 8,241,793 (08/14/2012).
- 105. Aruna Zhamu, Bor Z. Jang, and Jinjun Shi, "Nano Graphene Reinforced Nanocomposite for Lithium Battery Electrodes," US Patent Application No. 12/315,555(12/04/2008). (NGP + active particle + matrix)
- Aruna Zhamu, Bor Z. Jang, and Jinjun Shi, "Process for Producing Nano Graphene Reinforced Nanocomposite for Lithium Battery Electrodes," US Patent Application No. 12/319,812 (01/13/2009).
- 107. Aruna Zhamu and Bor Z. Jang, "Nano-structured Anode Compositions for Lithium Metal and Lithium-Air Secondary Batteries," US Pat. Appl. No. 12/589,999 (11/02/2009); Now US Patent No. 8,236,452 (08/07/2012). (Stabilized Li particles)
- 108. Aruna Zhamu and Bor Z. Jang, "Anode Compositions for Lithium Secondary Batteries," US Pat. Appl. No. 12/655,746 (01/07/2010). (Li foil)
- 109. Aruna Zhamu, Zhenning Yu, and Bor Z. Jang, "Lithium Metal-Sulfur and Lithium Ion-Sulfur Secondary Batteries Containing a Nano-structured Cathode and Processes for Producing Same," US Patent Application No. 12/655,597 (01/04/2010).
- 110. Aruna Zhamu, Zhenning Yu, C, G. Liu, and Bor Z. Jang, "Spacer-Modified Nano Graphene Electrodes for Supercapacitors," US Patent Application No. 12/655,247 (12/28/2009); now US Patent No. 8,315,039 (11/20/2012).
- Aruna Zhamu, Zhenning Yu, C, G. Liu, and Bor Z. Jang, "Spacer-Modified Nano Graphene Electrodes for Supercapacitors," US Patent Application No. 13/573,844 (10/09/2012); A divisional of US App. No. 12/655,247 (12/28/2009).
- 112. Aruna Zhamu, Zhenning Yu, C, G. Liu, and Bor Z. Jang, "Continuous Process for Producing Spacer-Modified Nano Graphene Electrodes for Supercapacitors," US Patent Application No. 12/655,744 (01/07/2010).
- 113. Zhenning Yu, Jinjun Shi, C. G. Liu, Bor Z. Jang, and Aruna Zhamu "Flexible Asymmetric Electrochemical Cells Using Nano Graphene Platelet as an Electrode Material," US Patent Application No. 12/657,579 (01/25/2010).
- 114. A. Zhamu, Jinjun Shi, Guorong Chen, Qing Fang, M. C. Wang, and B. Z. Jang, "Graphite and Carbon Particulates for the Lithium Ion Battery," US Patent Application No. 12/804,413 (07/22/2010).
- Zhenning Yu, Chen-guang Liu, David Neff, A. Zhamu, and B. Z. Jang, "Supercapacitor with a Meso-porous Nano Graphene Electrode," US Patent Application No. 12/804,911 (08/02/2010).
- C. G. Liu, David Neff, Zhenning Yu, Aruna Zhamu, and Bor Z. Jang, "Lithium Super-battery with a Functionalized Nano Graphene Cathode," US Patent Application No. 12/806,679 (08/19/2010).

- C. G. Liu, David Neff, Aruna Zhamu, and Bor Z. Jang, "Lithium Super-battery with a Functionalized Disordered Carbon Cathode," US Patent Application No. 12/924,211 (09/23/2010).
- 118. Aruna Zhamu, Jinjun Shi, Guorong Chen, M. C. Wang, and Bor Z. Jang, "Graphene-Enhanced Cathode Particulates for Lithium Batteries," US Patent Application No. 12/807,471 (09/07/2010).
- 119. Aruna Zhamu, Jinjun Shi, Guorong Chen, Qing Fang, and Bor Z. Jang, "Graphene-Enhanced Anode Particulates for Lithium Batteries," US Patent Application No. 12/807,635 (09/10/2010).
- Aruna Zhamu, C. G. Liu, David Neff, and Bor Z. Jang, "Surface-Controlled Lithium Ion-Exchanging Energy Storage Device," US Patent Application No. 12/928,927 (12/23/2010).
- Aruna Zhamu, C. G. Liu, David Neff, Z. Yu, and Bor Z. Jang, "Partially and Fully Surface-Enabled Metal Ion-Exchanging Battery Device," US Patent Application No. 12/930,294 (01/03/2011).
- Guorong Chen, Aruna Zhamu, Zhenning Yu, and B. Z. Jang, "Graphene-Enabled Vanadium Oxide Cathode and Lithium Cells Containing Same," US Patent Application No. 13/134,782 (06/17/2011).
- Aruna Zhamu, Yanbo Wang, and Bor Z. Jang, "Prelithiated Current Collector and Secondary Lithium Cells Containing Same," US Patent Application No. 13/199,058; 08/19/2011.
- Aruna Zhamu, Chen-guang Liu, X. Q. Wang, and Bor Z. Jang, "Surface-Mediated Lithium Ion-Exchanging Energy Storage Device," US Patent Application No. 13/199,450 (08/30/2011).
- 125. Aruna Zhamu, Chen-guang Liu, and Bor Z. Jang, "Partially Surface-Mediated Lithium Ion-Exchanging Cells and Method of Operating Same," US Patent Application No. 13/199,713 (09/07/2011).
- Aruna Zhamu, Guorong Chen, X. Q. Wang, Yanbo Wang, and B. Z. Jang, "Stacks of Internally Connected Surface-Mediated Cells and Methods of Operating Same," US Patent Application No. 13/374,321 (12/21/2011).
- 127. Aruna Zhamu, Guorong Chen, X. Q. Wang, Yanbo Wang, and B. Z. Jang, "Hybrid Electrode and Surface-Mediated Cell-based Super-Hybrid Energy Storage Device Containing Same," US Patent Application No. 13/374,408 (12/29/2011).
- 128. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Powered Vehicles and Methods of Operating Same," US Patent App. No. 13/374,894 (01/23/2012).
- 129. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cells with High Power Density and High energy Density," US Patent App. No. 13/385,105 (02/03/2012).
- 130. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Powered Portable Computing Devices and Methods of Operating Same," US Patent Application No. 13/385,245 (02/10/2012).
- 131. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Driven Power Tools and Methods of Operating Same," US Patent Application No. 13/385,350 (02/16/2012).

10

- 132. Yanbo Wang, Zhenning Yu, Aruna Zhamu, Guorong Chen, and Bor Z. Jang, "Inorganic Nano Sheet-Enabled Lithium-Exchanging Surface-Mediated Cells," US Patent Application No. 13/385,366 (02/16/2012).
 133. Guorong Chen, Venho Wang, Original College, 2016 (2017).
- 133. Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-ion Cell Having a High-Capacity Anode and a High-Capacity Cathode" US Patent Application No. 13/385,561 (2/27/2012).
- Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang,
 "Lithium-ion Cell Having a High Energy Density and High Power Density" US Patent
 Application No. 13/506,168 (04/02/2012).
 Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang,
 Application No. 13/506,168 (04/02/2012).
- Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Anuna Zhamu, and Bor Z. Jang, "Method of Operating a Lithium-ion Cell Having a High-Capacity Cathode" US Patent Application No. 13/506,324 (04/12/2012).
- Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Magnesium-Ion Cell Having a High-Capacity Cathode," US Patent Appl. No. 13/506,736 (05/14/2012).
 Guorono Chen Vanho Wang Oing Francisco.
- Guorong Chen, Yanbo Wang, Qing Fang, Aruna Zhamu, and Bor Z. Jang, "Dual Electroplating Cell," US Patent Appl. No. 13/507,057 (06/01/2012).
- Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Phthalocyanine-Based High-Capacity Cathode," US Patent Appl. No. 13/506,778 (05/17/2012).
 Guorong Chen, Yanba Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium 13/506,778 (05/17/2012).
- Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Meso-Porous Conductive Material Structure-Supported Phthalocyanine Compound Cathode," US Patent Appl. No. 13/507,168 (06/11/2012).
 C. G. Liu Guorong Chen Area 71.
- 140. C. G. Liu, Guorong Chen, Aruna Zhamu, and Bor Z. Jang, "Supercapacitor Having a Porous Carbon/Graphite Material-Supported Phthalocyanine Compound Electrode," US Patent Appl. No. (05/15/2013).
 141. Mingchao Wang, Guorong Change Cha
- 141. Mingchao Wang, Guorong Chen, Aruna Zhamu, and Bor Z. Jang, "Solvent-Free Process Based Graphene Electrode for Energy Storage Devices," US Patent Application No. 13/507,739 (07/25/2012).
- Guorong Chen, Zhenning Yu, Chen-guang Liu, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Chemically Bonded Phthalocyanine Compound Cathode," US Patent Application No. 13/573,275 (09/07/2012).
- Guorong Chen, Aruna Zhamu, and Bor Z. Jang, "Encapsulated Phthalocyanine Particles, High-Capacity Cathode Containing These Particles, and Rechargeable Lithium Cell Containing Such a Cathode," US Patent Application No. 13/573,298 (09/10/2012).
- 144. Yanbo Wang, Hui He, Aruna Zhamu, Yi-jun Lin, and Bor Z. Jang, "Rechargeable Lithium-Sulfur Battery Having a High Capacity and Long Cycle Life," US Patent Application No. 13/986,319 (04/22/2013).
- Hui He, Yanbo Wang, Wei Xiong, Aruna Zhamu, and Bor Z. Jang, "Lithium-Sulfur Secondary Battery Containing Gradient Electrolyte," US Patent Application No. 13/986,575 (05/16/2013).
- 146. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium Secondary Batteries Containing Lithium Salt-Ionic Liquid Solvent Electrolyte," US Patent Application No. 13/986,576 (05/16/2013).

- 147. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium Secondary Batteries Containing a Non-flammable Quasi-solid Electrolyte," US Patent Application No. 13/986,814 (06/10/2013).
- 148. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Non-flammable Quasi-Solid Electrolyte-Separator Layer Product for Lithium Battery Applications," US Patent Application No. 13/987,394 (07/22/2013).
- Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Process for Producing Non-flammable Quasi-Solid Electrolyte and Electrolyte-Separator for Lithium Battery Applications," US Patent Application No. 13/987,396 (07/22/2013).
 Yanbo Wang, Aruna Zhama, Arun
- 150. Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Method for Mass-Producing Silicon Nano Powder and Graphene-doped Silicon Nano Powder," US Patent Application No. 13/987,450 (07/26/2013).
- 151. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Anode Active Material-Coated Graphene Sheets for Lithium Batteries and Process for Producing Same," US Patent Application No. 13/987,566 (08/08/2013).
- 152. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Anode Containing Active Material-Coated Graphene Sheets and Lithium-ion Batteries Containing Same," US Patent Application No. 13/987,565 (08/08/2013).
- 153. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Cathode Active Material-Coated Discrete Graphene Sheets for Lithium Batteries and Process for Producing Same," US Patent Application No. 13/987,567 (08/08/2013).
- Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Non-flammable Quasi-Solid Electrolyte and Non-lithium Alkali Metal or Alkali-Ion Secondary Batteries Containing Same," US Patent Application No. 13/987,764 (08/30/2013).
- 155. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-Selenium Secondary Batteries Having Non-flammable Electrolyte," US Patent Application No. 13/987,785 (09/03/2013).
- Aruna Zhamu, Guorong Chen, and Bor Z. Jang, "Large-Grain Graphene Thin Film Current Collector and Secondary Batteries Containing Same," US Patent Application No. 13/987,994 (09/23/2013).

ASSIGNMENT

This Assignment Agreement is made and entered by and between Hui He, a citizen of the Peoples Republic of China, residing at 2929-8 Ferect) awa Dr. Barracek, OH, 4342/ (the "Assignor") and Nanotek Instruments, Inc., an Ohio corporation whose address is 1240 McCook Avenue, Dayton, OH 45404 (the "Assignee").

WHEREAS, Assignor is an inventor or co-inventor of certain new and useful inventions related to new materials, including nano-scaled graphene plates, processes, energy technologies, and other technologies as more fully described herein (the "Inventions") and

WHEREAS, Assignee desires to acquire the entire right, title and interest in and to the Inventions.

NOW, THEREFORE, the parties agree as follows:

- 1. The term "Inventions" shall mean (1) the issued United States patents listed in Exhibit "A" attached hereto and incorporated herein by reference and all corresponding rights to claim priority, (2) the patent applications listed in Exhibit "A" and any and all improvements which are disclosed in any of the aforesaid patent applications, (3) all Letters Patent to be obtained for said Inventions by the above applications or any continuation, divisional, renewal, or substitute thereof and, as to Letters Patent, any reissue or re-examination thereof, (4) all know-how, trade secrets, discoveries, concepts, ideas, and technologies related to the same, (5) any and all copyrights, copyright registrations and copyrightable subject matter related to the same; and (6) any trademarks related to such patents and patent applications.
- 2. In consideration of the sum of one dollar (\$1.00) and other good and valuable consideration, the receipt of which is acknowledged, the Assignor hereby assigns, transfers and conveys to Assignee all of Assignor's right, title and interest in and to (a) the Inventions, (b) any U.S. or foreign Letters Patent which may issue from the Inventions, and (c) all divisions, continuations, reissues, re-examinations and extensions of the patents and applications listed on Exhibit A.
- 3. Assignor further covenants that said Assignee will, upon its request, be provided promptly with all pertinent facts and documents relating to said Inventions and said Letters Patent and legal equivalents, as may be known and accessible to Assignor and he or she will testify as to the same in any interference, litigation or proceeding related thereto and will promptly execute and deliver to said Assignee or its legal representatives any and all papers,

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instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said Inventions and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purpose thereof. In Witness Whereof, the undersigned has executed this document as of the 2q day of INVENTOR (Signature) Hui He (Print Name) State of Ohio County of Green! Before me personally appeared said / foregoing instrument to be his free act and deed, this 2013. Public SAUNI LINCFARLAND

MY COMMISSION EXPIRES 7/5/14

EXHIBIT "A"

Assigned Patents

Invention Patents and Applications

Name of Assigned Patent	Patent Registration No. or Application No.	Status: Registered (R), Applied for Registration (A), Abandoned Application (AA) and Status Not Available (NA)
Yanbo Wang, Hui He, Aruna Zhamu, Yi-jun Lin, and	US Patent Application	A
Bor Z. Jang, "Rechargeable Lithium-Sulfur Battery	No. 13/986,319	
Having a High Capacity and Long Cycle Life,"	(04/22/2013).	
Hui He, Yanbo Wang, Wei Xiong, Aruna Zhamu,	US Patent Application	Α.
and Bor Z. Jang, "Lithium-Sulfur Secondary Battery	No. 13/986,575	
Containing Gradient Electrolyte,"	(05/16/2013).	
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Jang, "Lithium Secondary Batteries Containing	No. 13/986,576	
Lithium Salt-Ionic Liquid Solvent Electrolyte,"	(05/16/2013).	
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Lithium Secondary Batteries Containing a	No. 13/986,814	
Non-flammable Quasi-solid Electrolyte,"	(06/10/2013).	
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	," US Patent	A
Jang, "Non-flammable Quasi-Solid Electrolyte-	Application No.	
Separator Layer Product for Lithium Battery	13/987,394	
Applications	(07/22/2013).	
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Process for Producing Non-flammable Quasi-	No. 13/987,396	· ·
Solid Electrolyte and Electrolyte-Separator for	(07/22/2013).	
Lithium Battery Applications,"		
Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Anode Active Material-Coated Graphene	No. 13/987,566	
Sheets for Lithium Batteries and Process for	(08/08/2013).	
Producing Same,"		Y
Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Anode Containing Active Material-Coated	No. 13/987,565	
Graphene Sheets and Lithium-ion Batteries	(08/08/2013).	
Containing Same,"		
Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Cathode Active Material-Coated Discrete	No. 13/987,567	
Graphene Sheets for Lithium Batteries and Process	(08/08/2013).	
for Producing Same,"	1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Non-flammable Quasi-Solid Electrolyte and	Submitted 08/30/2013.	
Non-lithium Alkali Metal or Alkali-Ion Secondary		<u> </u>

Batteries Containing Same,"		
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-Selenium Secondary Batteries Having Non-flammable Electrolyte,"	US Patent Application Submitted 09/2013.	

- 1. Yanbo Wang, Hui He, Aruna Zhamu, Yi-jun Lin, and Bor Z. Jang, "Rechargeable Lithium-Sulfur Battery Having a High Capacity and Long Cycle Life," US Patent Application No. 13/986,319 (04/22/2013).
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- 11. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-Selenium Secondary Batteries Having Non-flammable Electrolyte," US Patent Application Submitted 09/2013.

ASSIGNMENT

This Assignment Agreement is made and entered by and between <u>Yanbo Wang</u>, a citizen of the Peoples Republic of China, residing at <u>2108 E David Red</u>, <u>Kettering</u>, <u>OH 45440</u> (the "Assignor") and Nanotek Instruments, Inc., an Ohio corporation whose address is 1240 McCook Avenue, Dayton, OH 45404 (the "Assignee").

WHEREAS, Assignor is an inventor or co-inventor of certain new and useful inventions related to new materials, including nano-scaled graphene plates, processes, energy technologies, and other technologies as more fully described herein (the "Inventions") and

WHEREAS, Assignee desires to acquire the entire right, title and interest in and to the Inventions.

NOW, THEREFORE, the parties agree as follows:

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instruments or affidavits required to apply for, obtain, maintain, issue and enforce said application, said Inventions and said Letters Patent and said equivalents thereof which may be necessary or desirable to carry out the purpose thereof.

necessary or destraine to early our me purpose mereor.
In Witness Whereof, the undersigned has executed this document as of the 28^{**} day of
<u>August</u> , 2013
INVENTOR
(Signature)
Yanbo Wang (Print Name)
State of Ohio SSN: 27/-/7-#380 County of Montgomery Before me personally appeared said 2000 and acknowledged the foregoing instrument to be his free act and deed, this day of 2000 and acknowledged,
2013.
SAUNI L MCFARILAND NOTARY PUBLIC STATE OF CHIC MY COMMISSION EXPIRES 7/5/14

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Assigned Patents

Invention Patents and Applications

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Aruna Zhamu, Yanbo Wang, and Bor Z. Jang, "Prelithiated Current Collector and Secondary Lithium Cells Containing Same,"	US Patent Application No. 13/199,058; 08/19/2011	A
Aruna Zhamu, Guorong Chen, X. Q. Wang, Yanbo Wang, and B. Z. Jang, "Stacks of Internally Connected Surface-Mediated Cells and Methods of Operating Same,"	US Patent Application No. 13/374,321 (12/21/2011)	A
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Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Powered Vehicles and Methods of Operating Same,"	US Patent App. No. 13/374,894 (01/23/2012)	A
Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cells with High Power Density and High energy Density,"	US Patent App. No. 13/385,105 (02/03/2012)	A
Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Powered Portable Computing Devices and Methods of Operating Same,"	US Patent Application No. 13/385,245 (02/10/2012)	A
Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Driven Power Tools and Methods of Operating Same,"	US Patent Application No. 13/385,350 (02/16/2012).	A
Yanbo Wang, Zhenning Yu, Aruna Zhamu, Guorong Chen, and Bor Z. Jang, "Inorganic Nano Sheet-Enabled Lithium-Exchanging Surface-Mediated Cells,"	US Patent Application No. 13/385,366 (02/16/2012).	A _c
Guorong Chen, Yanbo Wang, Qing Fang, Xiqing	US Patent Application	A

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Wang, Aruna Zhamu, and Bor Z. Jang, "Lithium-ion	No. 13/385,561	
Cell Having a High-Capacity Anode and a High-	(2/27/2012)	
Capacity Cathode"		
Guorong Chen, Yanbo Wang, Qing Fang, Xiqing	US Patent Application	A
Wang, Aruna Zhamu, and Bor Z. Jang,	No. 13/506,168	
"Lithium-ion Cell Having a High Energy	(04/02/2012).	
Density and High Power Density"		
Guorong Chen, Yanbo Wang, Qing Fang, Xiqing	US Patent Application	A
Wang, Aruna Zhamu, and Bor Z. Jang, "Method of	No. 13/506,324	12
Operating a Lithium-ion Cell Having a High-	(04/12/2012)	
Capacity Cathode"	(a comparately	
Yanbo Wang, Aruna Zhamu, and Bor Z. Jang,	US Patent Appl. No.	Α
"Rechargeable Magnesium-Ion Cell Having a High-	13/506,736	A
Capacity Cathode,"	•	
Guorong Chen, Yanbo Wang, Qing Fang, Aruna	(05/14/2012),	
	US Patent Appl. No.	A
Zhamu, and Bor Z. Jang, "Dual Electroplating Cell,"	13/507,057	
	(06/01/2012).	
Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor	US Patent Appl. No.	Α
Z. Jang, "Rechargeable Lithium Cell Having a	13/506,778	
Phthalocyanine-Based High-Capacity Cathode,"	(05/17/2012)	
Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor	US Patent Appl, No.	A
Z. Jang, "Rechargeable Lithium Cell Having a Meso-	13/507,168	
Porous Conductive Material Structure-Supported	(06/11/2012).	
Phthalocyanine Compound Cathode,"		
Yanbo Wang, Hui He, Aruna Zhamu, Yi-jun Lin, and	US Patent Application	A
Bor Z. Jang, "Rechargeable Lithium-Sulfur Battery	No. 13/986,319	
Having a High Capacity and Long Cycle Life,"	(04/22/2013).	
Hui He, Yanbo Wang, Wei Xiong, Aruna Zhamu,	US Patent Application	A
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Containing Gradient Electrolyte,"	(05/16/2013).	
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Lithium Secondary Batteries Containing	No. 13/986,576	
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Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Lithium Secondary Batteries Containing a	No. 13/986,814	******
Non-flammable Quasi-solid Electrolyte,"	(06/10/2013).	
Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.	," US Patent	A
Jang, "Non-flammable Quasi-Solid Electrolyte-	Application No.	
Separator Layer Product for Lithium Battery	13/987,394	
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Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z.		3
	US Patent Application	A
Jang, "Process for Producing Non-flammable Quasi-	No. 13/987,396	
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Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z.	US Patent Application	A
Jang, "Anode Containing Active Material-Coated	No. 13/987,565	

(08/08/2013).	
US Patent Application No. 13/987,567 (08/08/2013).	A
US Patent Application Submitted 08/30/2013.	A
US Patent Application Submitted 09/2013.	A
	US Patent Application No. 13/987,567 (08/08/2013). US Patent Application Submitted 08/30/2013.

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- 7. Aruna Zhamu, Guorong Chen, Qing Fang, Xiqing Wang, Yanbo Wang, and Bor Z. Jang, "Surface-Mediated Cell-Driven Power Tools and Methods of Operating Same," US Patent Application No. 13/385,350 (02/16/2012).
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 Application No. 13/506,168 (04/02/2012).
- Guorong Chen, Yanbo Wang, Qing Fang, Xiqing Wang, Aruna Zhamu, and Bor Z. Jang, "Method of Operating a Lithium-ion Cell Having a High-Capacity Cathode" US Patent Application No. 13/506,324 (04/12/2012).
- 12. Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Magnesium-Ion Cell Having a High-Capacity Cathode," US Patent Appl. No. 13/506,736 (05/14/2012).
- 13. Guorong Chen, Yanbo Wang, Qing Fang, Aruna Zhamu, and Bor Z. Jang, "Dual Electroplating Cell," US Patent Appl. No. 13/507,057 (06/01/2012).
- 14. Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Phthalocyanine-Based High-Capacity Cathode," US Patent Appl. No. 13/506,778 (05/17/2012).
- 15. Guorong Chen, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Rechargeable Lithium Cell Having a Meso-Porous Conductive Material Structure-Supported Phthalocyanine Compound Cathode," US Patent Appl. No. 13/507,168 (06/11/2012).

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- 23. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Anode Containing Active Material-Coated Graphene Sheets and Lithium-ion Batteries Containing Same," US Patent Application No. 13/987,565 (08/08/2013).
- 24. Yanbo Wang, Hui He, Aruna Zhamu, and Bor Z. Jang, "Cathode Active Material-Coated Discrete Graphene Sheets for Lithium Batteries and Process for Producing Same," US Patent Application No. 13/987,567 (08/08/2013).
- 25. Hui He, Yanbo Wang, Aruna Zhamu, and Bor Z. Jang, "Non-flammable Quasi-Solid Electrolyte and Non-lithium Alkali Metal or Alkali-Ion Secondary Batteries Containing Same," US Patent Application Submitted 08/30/2013.
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