

Vikas Berry, PhD

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Department of Chemical Engineering
University of Illinois at Chicago
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EDUCATION

Virginia Tech	Chemical Engineering	Ph.D	2006
University of Kansas	Chemical Engineering	MS	2003
Indian Institute of Technology-Delhi	Chemical Engineering	BS	1999

PROFESSIONAL EXPERIENCE

- University of Illinois at Chicago, Chicago, IL
 - Nov 2016 – Present Department Head
 - Aug 2019 – Present Professor
 - Aug 2015 – Nov 2016 Interim Department Head
 - Aug 2014 – Aug 2019 Associate Professor
- Kansas State University, Manhattan, KS
 - Nov 2011 – Aug 2014 William H. Honstead Professor
 - Jul 2012 – Aug 2014 Associate Professor
 - Jan 2007 – Jul 2012 Assistant Professor
- Virginia Tech, Blacksburg, VA
 - Jan 2013 – Dec 2016 Graduate Research Assistant (PhD)
- University of Kansas, Lawrence, KS
 - Aug 2000 – Dec 2002 Graduate Research Assistant (MS)
- Cadila Pharmaceuticals, India
 - Aug 1999 – Jul 2000 Pharmaceutical Process Scientist

PROFESSIONAL ACTIVITIES AND HONORS:

- Louis Stokes Alliances for Minority Participation-NSF International Center of Excellence (LSAMP-NICE) Faculty Advisor Award, 2019
- Rudolph A. Marcus Award, 2017
- NSF-CAREER Award, 2011
- William H. Honstead Professorship, 2011 – 2014
- Sigma Xi Outstanding Junior Scientist Award, 2010
- Big-XII Fellow - 2009, Kansas State University
- Omega Chi Epsilon Honor Society of Chemical Engineering, Member, 2007
- Sigma Xi Scientific Research Society, Member, 2007
- Stroebel Scholarship Recipient, University of Kansas 2000-02
- Editorial Service
 - Scientific Reports, Editorial Board Member, 2012 – Present

- Science Advances Letters, Associate Editor, 2014 – Present
- Advanced Carbon, Scientific Advisory Board
- Journal of Nanomaterials and Molecular Nanotechnology, Scientific Advisory Board
- Plenary and Keynote Lectures
 - Plenary: Graphene Conference (Rome, 2019), *Tsinghua University* (China 2011)
 - Keynote: TechConn (2020), RRR (2019), *ISFM* – (India 2018); *ICREA – Graphene Biosensors* (Spain - 2015); *IMST* (India, 2012)

PUBLICATIONS (CITATIONS = 5511) *Indicates corresponding authorship

1. Alireza Ahmadian Yazdi, Jie Xu, and Vikas Berry, “Phononics of Graphene Interfaced with Flowing Ionic Fluid: An Avenue for High Spatial Resolution Flow Sensor Applications”, **ACS Nano**, Accepted **2021**
2. Mandana Behbahani, Bijentimala Keisham, Peter Theiss, Vikas Berry, Ankit Mehta, “Intraoperative Imaging Device for GBM Surgery: Review of Raman Based Intraoperative Imaging and Introduction of a Novel Handheld Probe Technology”, **Journal of Raman Spectroscopy**, Accepted **2021**
3. Aaditya Pendse, Semih Cetindag, Pavel Rehak, Sanjay Behura, Haiqi Gao, Ngoc Hoang Lan Nguyen, Tongshuai Wang, Vikas Berry, Petr Král, Jerry Shan, Sangil Kim, “Highly Efficient Osmotic Energy Harvesting in Charged Boron - Nitride - Nanopore Membranes”, **Advanced Functional Materials**, **2021**
4. Chandan Kumar Maity, Deb Kumar Santra, Kartikey Verma, Sumanta Sahoo, Sheldon Cotts, Deji Akinwande, Vikas Berry, Ganesh Chandra Nayak, “Induced conducting energy-levels in a boron nitride nano-framework for asymmetric supercapacitors in high charge-mobility ionic electrolytes”, **Composites B**, **2021**
5. Mandana Behbahani, Bijentimala Keisham, Deisy Fernandes, Vikas Berry, Ankit Indravadan Mehta, “Non-invasive Evaluation of Glioblastoma Multiforme (GBM) Using Graphene Monitored Via Raman Mapping”, **Neurosurgery**, **2021**
6. Yu Wen, Rousan Debbarma, Md Golam Rasul, Reza Shahbazian-Yassar, Vikas Berry and Junxia Shi, “Direct growth of tungsten disulfide (WS₂) on gallium nitride (GaN) and the photovoltaic characteristics of the heterojunctions”, **Semiconductor Science and Technology**, Accepted, **2020**
7. M Behbahani, B Keisham, D Fernandes, V Berry, AI Mehta “Non-invasive Evaluation of Glioblastoma Multiforme (GBM) Using Graphene Monitored Via Raman Mapping”, **Clinical Neurosurgery** **67**, **nyaa447_915**, 2020
8. Pavan S Emani, Hisham Maddah, Arjun Rangoonwala, Songwei Che, Aditya Prajapati, Meenesh R Singh, Dieter M Gruen, Vikas Berry, Sanjay K Behura, “Organophilicity of Graphene Oxide for Enhanced Wettability of ZnO Nanorods”, **ACS Applied Materials and Interface**, **12**, **35**, 39772, **2020**
9. Deisy Fernandez, Dylan Lynch, and Vikas Berry, “3D-Printed Graphene/Polymer Structure for Electron-Tunneling Based Devices”, **Scientific Reports**, **10**, 11373, **2020**
10. Chen Wang, Sanjay Behura, Vikas Berry, “Temperature dependent device characteristics of graphene/h-BN/Si heterojunction”, **Semiconductor Science and Technology**, **2020**

11. Sheldon Cotts, Bijentimala Keisham, Jay Rawal, Vikas Berry, "Interface of Electrogenic Bacteria and Reduced Graphene Oxide: Energetics and Electron Transport", **ACS Applied Electronic Materials**, 2020
12. Hisham Middah, Vikas Berry and Sanjay Behura, "Biomolecular Photosensitizers for Dye-Sensitized Solar Cells: Recent Developments and Critical Insights", **Renewable & Sustainable Energy Reviews**, Accepted, 2020
13. Hisham Middah, Vikas Berry and Sanjay Behura, "Cuboctahedral Stability in Titanium Halide Perovskites via Machine Learning", **Computational Materials Science**, Accepted, 2020
14. Sungjoon Kim, Bijentimala Keisham, and Vikas Berry*, "Cellular Nano-Transistor: An Electronic-Interface between Nanoscale Semiconductors and Biological Cells", **Materials Today Nano**, 100063, 2020
15. Songwei Che, Sanjay K Behura, and Vikas Berry*, "Photo-Organometallic, Nanoparticle-Nucleation on Graphene for Cascaded-Doping", **ACS Nano**, 13 (11), 12929-12938, 2019
16. Sanjay Behura*, Chen Wang, Yu Wen, and Vikas Berry*, "Graphene/Semiconductor Heterojunction Sheds Light on Emerging Photovoltaics", **Nature Photonics**, 13, 312–318, 2019
17. Shikai Deng, Dongjoon Rhee, Won-Kyu Lee, Songwei Che, Bijentimala Keisham, Vikas Berry and Teri W. Odom, "Graphene Wrinkles Enable Spatially-defined Chemistry", **Nano Letters**, 19(8), 5640-5646, 2019
18. A. Pendse, M.H. Lin, S. Cetindag, A. Rackovic, R. Debbarma, S. Almassi, B. Chaplin, Vikas Berry, J. W. Shan, and S. Kim*, "Charged Layered Boron Nitride-Nanoflake Membranes for Efficient Ion Separation and Water Purification", **Small**, 1904590, 2019
19. S. Deng, R. Debbarma, S. Che, and V. Berry*, "Strain in Single-Wrinkle on MoS₂ Flake for in-Plane Realignment of Band-Structure for Enhanced Photo-Response", **Nanoscale**, 11 (2), 504-511, 2019
20. Bijentimala Keisham, Akop Seksenyan, Steven Denyer, Pouyan Kheirkhah, Gregory D. Arnone, Pablo Avalos, Abhiraj D. Bhimani, Clive Svendsen, Vikas Berry, and Ankit I. Mehta, "Quantum Capacitance Based Amplified Graphene Phononics for Studying Neurodegenerative Diseases", **ACS AMI**, 11 (1), 169-175, 2018
21. R. Debbarma, S. K. Behura*, Y. Wen, S. Che, and V. Berry*, "WS₂-induced enhanced optical absorption and efficiency in graphene/silicon heterojunction photovoltaic cells", **Nanoscale**, 10 (43), 20218-20225, 2018
22. K. Jasuja, K. Ayinde, C. Davis, S. K. Behura, M. Ikenberry, D. Moore, K. Hohn and V. Berry*, "Introduction of Protonated Sites on Exfoliated, Large-Area Sheets of Hexagonal Boron Nitride", **ACS Nano**, 12 (10), 9931-9939, 2018
23. Shikai Deng, and Vikas Berry*, "Strain Engineering in Two-Dimensional Nanomaterials Beyond Graphene", **Nano Today**, 22, 14-35, 2018
24. Phong Nguyen, Sanjay Behura, Michael Seacrist and Vikas Berry*, "Intergrain Diffusion of Carbon Radical for Wafer-Scale, Direct Growth of Graphene on Silicon-Based Dielectrics", **ACS Applied Materials and Interfaces**, 10 (31), 26517-26525, 2018
25. Songwei Che, Kabeer Jasuja, Sanjay K. Behura, Phong Nguyen, T. S. Sreeprasad, and Vikas Berry*, "Retained Carrier-Mobility and Enhanced Plasmonic-Photovoltaics of Graphene via ring-centered η 6 Functionalization and Nano-Interfacing", **Nano Letters**, 17 (7), 4381-4389, 2017

26. Sanjay Behura, Phong Nguyen, Songwei Che, Rousan Debbarma, Michael Seacrist and **Vikas Berry***, "Chemical Interaction Guided, Metal-Free Growth of Large-Area Hexagonal Boron Nitride on Silicon-Based Substrates", **ACS Nano**, **11** (5), 4985-4994 **2017**
27. Shikai Deng, Enlai Gao, Zhiping Xu, **Vikas Berry***, "Adhesion Energy of MoS₂ Thin Films on Silicon-Based Substrates Determined via the Attributes of a Single MoS₂ Wrinkle", **ACS Applied Materials and Interfaces**, **9** (8), 7812-7818, **2017**
28. Sanjay Behura, Kai-Chih Chang, Yu Wen, Rousan Debbarma, Phong Nguyen, Songwei Che, Shikai Deng, Michael Seacrist, and Vikas Berry*, "WS₂/Silicon Heterojunction Solar Cells", **IEEE Nanotechnology Magazine**, **11** (2), 33-38, **2017**
29. Vedhikha T. Parthasarathy, Rousan Debbarma, Sanjay Behura, Phong Nguyen, Yu Wen, Dylan Lynch, and Vikas Berry*, "Facile Solution Processed MoS₂-PEDOT:PSS Mixed Structure as Flexible Paper-Based Infra-Red Sensor", **Science Advances Today**, **3**, 25268, **2017**
30. Bijentimala Keisham, Arron Cole, Phong Nguyen, Ankit Mehta, **Vikas Berry***, "Cancer Cell Hyperactivity and Membrane Dipolarity Monitoring via Raman Mapping of Interfaced Graphene: Towards Non-Invasive Cancer Diagnostics", **ACS Applied Materials and Interfaces**, **8** (48), 32717, **2016**
31. Shikai Deng, and **Vikas Berry***, "Increased Hierarchical Wrinklons on Stiff Metal Thin Film on Liquid Meniscus", **ACS Applied Materials and Interfaces**, **8** (37), 24956-24961, **2016**
32. Shikai Deng, Enlai Gao, Yanlei Wang, Soumyo Sen, Sreeprasad Theruvakkattil Sreenivasan, Sanjay Behura, Zhiping Xu, Petr Kral, and **Vikas Berry***, "Confined, Oriented and Electrically Anisotropic Graphene Wrinkles on Bacteria", **ACS Nano**, **10** (9), 8403, **2016**
33. Shikai Deng and **Vikas Berry***, "Wrinkled, Rippled and Crumpled Graphene: An Overview of Formation Mechanism, Electronic Properties, and Applications", **Materials Today**, **19** (14), 197-212, **2016**
34. Rousan Debbarma, Sanjay Behura, Phong Nguyen, T. S. Sreeprasad, and **Vikas Berry***, "Electrical Transport and Network Percolation in Graphene and Boron Nitride Mixed-Platelet Structures", **ACS Applied Materials and Interfaces**, **8** (13), 8721-27, **2016**
35. Sanjay Behura, Phong Nguyen, Songwei Che, Rousan Debbarma, and **Vikas Berry***, "Large-Area, Transfer-Free, Oxide-Assisted, Synthesis of Hexagonal Boron Nitride Films and their Heterostructures with MoS₂ and WS₂", **Journal of American Chemical Society**, **137** (40), 13060-13065, **2015**
36. Sanjay Behura and **Vikas Berry***, "Interfacial Non-Degenerate Doping of MoS₂ and other 2D Semiconductors", **ACS Nano**, **9** (3), 2227-2230, **2015**
37. T. S. Sreeprasad, Phong Nguyen, Ahmed Alshogheathri, Luke Hibbeler, Fabian Martinez, Nolan McNeil and **Vikas Berry***, "Graphene Cytobot: Single Spore Hydraulics for Electron-Tunneling Modulation between Quantum Dots for Biomechanical Applications", **Scientific Reports**, **5**, 9138, **2015**
38. P. Nguyen, D. Briggs, C. Fager and **V. Berry***, "MoS₂ quantum dots interfaced with hydroscopic polyelectrolyte for water gated devices", **Science Letters**, **4**, 118, **2015**
39. D. Briggs, S. Deng, and **V. Berry***, "Wrinkling Graphene with Bacteria and Functionalization of MoS₂ for Electronic Applications", **ECS Transactions**, **64** (6), 479-489, **2014**
40. T. S. Sreeprasad, P. Nguyen, N. Kim, **V. Berry***, "Controlled, Defect-Guided, Metal-Nanoparticle-Incorporation onto MoS₂ via Chemical and Microwave Routes: Electrical, Thermal, and Structural Properties", **Nano Letters**, **13** (9), 4434-4441, **2013**

41. T. S. Sreeprasad, A. A. Rodriguez, J. Colston, A. Graham, E. Shishkin, V. Pallem, **V. Berry***, "*Electron-Tunneling Modulation in Percolating-Network of Graphene Quantum Dots: Fabrication, Phenomenological Understanding, and Humidity/Pressure Sensing Applications*", **Nano Letters**, 13 (4), 1757–1763, **2013**
42. **V. Berry***, "*Impermeability of Graphene and its Applications*", **Carbon**, 62, 1–10, **2013**
43. P. Nguyen, J. Li, T. S. Sreeprasad, K. Jasuja, N. Mohanty, M. Ikenberry, K. Hohn, V. Shenoy and **V. Berry***, "*Covalent Functionalization of Dipole-Modulating Molecules on Trilayer Graphene: An Avenue for Graphene-Interfaced Molecular Machines*", **Small**, 9, 3823-3828, **2013**
44. T. S. Sreeprasad and **V. Berry***, "*How do the Electrical Properties of Graphene change with its Functionalization?*", **Small**, 9, 341-350, **2013**
45. N. Mohanty, D. Moore, Z. Xu, T. S. Sreeprasad, A. Nagaraja, A. A. Rodriguez and **V. Berry***, "*Nanotomy Based Production of Transferrable and Dispersible Graphene-Nanostructures of Controlled Shape and Size*", **Nature Communications**, 3, Article number: 844, **2012**
46. B. Kollbe Ahn, J. Sung, Y. Li, N. Kim, M. Ikenberry, K. Hohn, N. Mohanty, P. Nguyen, T. S. Sreeprasad, S. Kraft, **V. Berry***, and X. S. Sun*, "*Synthesis and characterization of amphiphilic reduced graphene oxide with epoxidized methyl oleate*", **Advanced Materials**, 24, 16, 2123-2129, **2012**
47. P. Nguyen and **V. Berry***, "*Biological Interfaces with Graphene: Opportunities and Challenges*", **Journal of Physical Chemistry Letters**, 3, 1024-1029, **2012**
48. N. Mohanty, M. Fahrenholz, A. Nagaraja, D. Boyle, and **V. Berry***, "*Impermeable Graphenic Encasement of Bacteria*", **Nano Letters**, 11 (3), 1270–75, **2011**
49. V. Berry, and R. F. Saraf, "*Modulation of Electron-Tunneling in Nanoparticle Array by Sound Wave: An Avenue to High Speed, High-Sensitivity Sensors*", **Small**, 7, 17, 2485-90, **2011**
50. S. Park, N. Mohanty, J. W. Suk, A. Nagaraja, J. An, R. D. Piner, W. Cai, **V. Berry*** and R. S. Ruoff*, "*Biocompatible, robust free-standing paper composed of TWEEN/graphene composite*", **Advanced Materials**, 22 (15) 1736-40, **2010**
51. K. Jasuja, J. Linn, S. Melton, and **V. Berry***, "*Microwave-Reduced Uncapped Metal Nanoparticles on Graphene: Tuning Catalytic, Electrical and Raman Properties*", **Journal of Physical Chemistry Letters**, 1, 1853-60, **2010**
52. K. Jasuja and **V. Berry***, "*Implantation and Growth of Dendritic Gold Nanostructures on Graphene Derivatives: Electrical-Property-Tailoring and Raman-Enhancement*", **ACS-Nano**, 3 (8), 2358-2366, **2009**.
53. N. Mohanty, A. Nagaraja, J. Armesto and **V. Berry***, "*High-Throughput, Ultrafast Synthesis of Solution Dispersed Graphene via Hydride Chemistry*", **Small**, 6 (2) 226-31, **2009**
54. N. Mohanty and **V. Berry***, "*Graphene-based Single-Bacterium Resolution Biodevice and DNA-Transistor - Interfacing Graphene-Derivatives with Nano and Micro Scale Biocomponents*", **Nano Letters**, 8, 4469-4476, **2008**
55. K. Jasuja, A. Thompson, and **V. Berry***, "*Reversibly Compressible and Stretchable 'Spring-like' Polymeric Nano-Junctions between Metal Nanoparticles*", **Small**, 4, 2181-2886, **2008**
56. K. Jasuja and **V. Berry***, "*Incorporating Azo-group-functionalized Molecular Junctions between Metal Nanoparticles to produce High-rectification-memory Nanodevices*", **MRS proceedings**, **2008**
57. V. Berry, and R. F. Saraf*, "*Self-Assembly of Nanoparticles on Live Bacterium: An Avenue to Fabricate Electronic Devices*", **Angewandte Chemie International Edition**, 44, 6668-6673, **2005**

58. V. Berry, A. Gole, S. Kundu, C. Murphy, and R. F. Saraf*, "Deposition of CTAB Terminated Nanorods on Bacteria to Form Highly Conducting Hybrid System", **Journal of the American Chemical Society**, 127, 17600-17601, **2005**
59. Agarwal, V. Berry, Alapati, and K. J. Nordheden*, "Characterization of SiCl₄/N₂ Plasmas", **Journal of Electrochemical Society**, 152, 210-212, **2005**
60. V. Berry, S. Rangaswamy, and R. F. Saraf, "Highly Selective, Electrically Conductive Monolayer of Nanoparticles on Live Bacteria", **Nano Letters**, 4, 939-942, **2004**

BOOK CHAPTERS

61. *Graphene-based 3D Macrostructures for Clean Energy and Environmental Applications*: Chapter: "Highly Efficient Dye-Sensitized Solar Cells with Integrated 3D Graphene-Based Materials", by Hisham A. Maddah, Anmole Jhally, Vikas Berry and Sanjay K. Behura, 2021.
62. *Biosensors Based on Nanomaterials and Nanodevices*: Chapter: "Bioelectronics on Graphene" by Vikas Berry; **CRC Press - Taylor and Fransis Publication**, 2013.
63. *Chemistry of Graphene*: Chapter: 'Bioelectronic Devices from Graphene' by Vikas Berry; **Pan Stanford Publishing**, 2013.

PATENTS:

GRANTS

64. "Production of Graphene Nanoribbons and Quantum Dots with Controlled Dimensions and Crystallographic Orientation", Vikas Berry, Nihar Mohanty and David Moore, **US Patent US9272911 (2016)**
65. "Direct formation of graphene on semiconductor substrates and structures prepared thereby", M.R. Seacrist and Vikas Berry, **US Patent US20160233305 (2016)**
66. "Direct and sequential formation of monolayers of boron nitride and graphene on substrates", Michael R. Seacrist, Vikas Berry and Phong T. Nguyen, **US Patent US9029228 (2015)**
67. "Direct formation of graphene on semiconductor substrates", Michael R. Seacrist and Vikas Berry, **Patent Number US8884310 (2014)**
68. "Fabrication of Ultra Long Necklace of Nanoparticles", Ravi Saraf, S. Niu, V. Berry, V. Maheshwari, **Patent Number: US7749561 (2010)**

APPLICATIONS

69. "Boron-nitride nanotube membranes", S. Kim, J. Shan, V. Berry, S. Cetindag, Sanjay K. Behura, A. Pendse, and R. Praino, **US Patent App. 16/631,082 (2020)**
70. "Direct Formation of Hexagonal Boron Nitride on Silicon-Based Dielectrics", M.R. Seacrist, V. Berry, S. Behura, P. Nguyen, **Patent App. 16/094,141 (2019)**
71. "Epitaxial Growth of Defect-free, Wafer-scale Single-Layer Graphene on Thin Films of Cobalt", M.R. Seacrist, V. Berry, S. Behura, P. Nguyen, **Patent App. 16/234,711 (2019)**
72. "Live Bioelectronic cell gated transistor", R. F. Saraf, V. Berry, M. Inan, S. Niu (**USPTO Application #**

20100243984) (2010)

73. *“Highly resolved, low noise, room-temperature coulomb staircase and blockade up to 2.2V in isolated 50 micron long one dimensional necklace of 10 nm Au particles”*, R. F. Saraf, V. Berry, S. Niu (**US Patent application number: US 11/477,263**)
74. *“Graphene-Based Single-Bacterium Resolution Biodevice and DNA Transistor”*, Vikas Berry and Nihar Mohanty (**KSU Disclosure Ref. No. 09-22**)

8 current disclosures at UIC.

FUNDING SUPPORT FOR RESEARCH

TOTAL = \$ 3.48 Million As PI = \$2.56 Million

1. Co-PI *“Developing Professional Identity: Integrating Academic and Workplace Competencies within Engineering Programs”*.
NSF; Amount \$ 200,000; Start Date: 09/30/20; Period = 2 Year
2. PI *“Optimization of Bench Top Graphene Production from Coal using a Hummers Method”*; Co-PIs Ankit Mehra and Sanjay Behura
Ramaco Carbon; Amount \$191,000; Start Date: 01/01/2020; Period = 1.5 years
3. PI (UIC) *“Thin-Film Sensors”*; PI (Argonne) Anirudh Sumant
Argonne National Laboratory; Amount \$88,323; Start Date: 02/01/2020; Period = 1 years
4. PI *“Engineering the Bacterial Membrane with Conductive Pathways for Enhanced Efficiency of Electron-Transfer to the Anode in Microbial-Fuel-Cells”*
Office of Naval Research; Amount \$510,000; Start Date: 07/01/2018; Period = 3 years
5. PI *“Graphene-Coating on Mold for Reduced Glass Adhesions”*
Anheuser-Busch InBev; \$32,999; Start Date: 11/01/2018; Period = 3 years
6. PI *“Indo-US Virtual Networked Joint Center – 2D Nanomaterials for Energy Storage”*
Govt. of India – Indo-US Science and Technology Forum; Amount \$68,857; Start Date: 03/01/2018; Period = 2 years
7. Co-PI *“Wide Bandgap Semiconductor 1D Nanowires-2D Materials Core-Shell Architecture for Photovoltaic Energy Conversion”*; PI: Sanjay Behura
Dimerond Technologies; Amount \$185,000; Start Date: 05/01/2018; Period = 2 years
8. PI *“Enabling the Incorporation of DotzNano – Graphene Quantum Dots into Ultrahigh-Sensitivity Humidity Detectors”*
DotzNano Inc; Amount \$91,000; Start Date: 05/01/2017; Period = 1 year
9. PI *“ICORP: Large-Area “ η 6-Functionalized Graphene Sheets with Preserved Lattice for Semiconductor Applications and Industry”*.
NSF; Amount \$ 50,000; Start Date: 11/15/14; Period = 0.5 Year
10. PI *“Growth of Large-Area Graphene-BN and Transition Metal Dichalcogenide Sandwich Systems and Detailed Characterization of their Structural, Electrical and Interfacial Properties”*.
SunEdison Semiconductors Inc; Amount \$ 210,750; Start Date: 09/01/14; Period = 2 Year
11. PI *“Growth and Transfer of Large-Area Graphene on Silicon and Silica Substrates and its Surface Engineering”*.

- MEMC Inc; Amount \$ 40,000; Start Date: 04/01/14; Period = 3 Months
12. PI "Detection of Cancer Market with Graphene Sensors".
Terry C. Johnson Center for Basic Cancer Research; Amount \$ 25,500; Start Date: 05/01/13; Period = 1 Year
 13. PI "*Tapered* Graphene Nanoribbons of Controlled Width and Tapering Angle: Carrier-Tunable Diode Transistor".
Office of Naval Research; Amount \$ 300,000; Start Date: 07/01/11; Period = 3 Year
 14. PI "CAREER: Detailed Characterization of Graphene Quantum Dots of Controlled Size, Shape and Chemistry".
NSF; Amount \$ 400,000; Start Date: 02/01/11; Period = 5 Year
 15. PI "Growth and Transfer of Large-Area Graphene on Silicon and Silica Substrates and its Surface Engineering".
MEMC Inc; Amount \$ 237,913; Start Date: 04/01/11; Period = 3 Year
 16. PI "Detailed Surface Engineering and Electrical Characterization of pi-Functionalized Graphene Sheets and Ribbons with Preserved Lattice and Electronic Characteristics".
NSF; Amount \$ 301,704; Start Date: 08/15/10; Period = 3 Year
 17. PI "EAGER: Graphene-Nanoribbons of Controlled Width and Crystallographic-Orientation".
NSF; Amount \$ 76,000; Start Date: 08/01/09; Period = 1 Year
 18. PI "Detection of Cancer Market with Graphene Sensors".
Terry C. Johnson Center for Basic Cancer Research; Amount \$ 25,500; Start Date: 04/01/10; Period = 1 Year
 19. Co-PI, "MRI: Acquisition of a Field Emission Scanning Electron Microscope for Kansas State University", PI: James Edgar, Co-PIs: Christopher Sorensen, and Jun Li.
NSF; Amount: \$ 518,928; Start Date: 09/01/09; Period = 3 years
 20. PI "Study of Graphene Nanoribbon's Structural Properties using STM: Determining Edge-Crystallographic-orientation and defects"
Brookhaven National Laboratory; Equipment Usage Time Granted on STM; Period = 3 Years
 21. PI "Big-XII Fellowship: Collaboration Research in Graphene Biointerfacing"
KSU; Amount \$ 3,000; Start Date: 05/01/09; Period = 1 Year
 22. PI "Presenting at Trends in Nanotechnology - 2008"
KSU: Presidential Faculty Development Award; \$ 2,000; 2008
 23. PI "*Recent Advances in Graphene and Related Materials conference held in Singapore*"
KSU: Presidential Faculty Development Award; \$ 2,500; 2010

PRESENTATIONS

1. Sanjay K. Behura, and Vikas Berry, "Atomically Precise Moire Fringes in Graphene and h-BN Heterostructures" **Materials Research Society**, Nov, 2019
2. Sheldon Cotts, Bijentimala, and Vikas Berry, "Increased Electron Transport Inside Microbial Fuel Cell Through Interfacing Graphene with Geobacter", ECEE, Glasgow, UK, 2019 - 7/23/19
3. Sheldon Cotts, Bijentimala, and Vikas Berry, "Graphene-Interface with Electrogenic Bacterial Membrane for Electron-Harvestation", ISMET 7, Okinawa, Japan 10/8/19
4. Sheldon Cotts, Bijentimala, and Vikas Berry, "Increased Electron Transport Inside Microbial Fuel Cell

- Through Interfacing Graphene with Geobacter”, AIChE Orlando, FL, 2019 - 11/12/19
5. Sanjay K. Behura, and Vikas Berry, “Graphene nanotechnology and energy harvesting” **Ramaco, July, WY, 2019**
 6. *Keynote Talk*, Vikas Berry, “Chemical and Structural Manipulation of 2-D Nanomaterials for Expanding its Applications”, **Ramaco Research Rodeo Conference - 2019**, Sheridan, WY, July 2019
 7. *Plenary Talk*, Vikas Berry, “Chemical and Structural Manipulation of 2-D Nanomaterials and Their Heterostructures”, **Graphene Conference - 2019**, Rome, June 2019
 8. *Invited Talk*, Vikas Berry, “Chemical and Structural Manipulation of 2-D Nanomaterials and Their Heterostructures”, **Department of Chemistry, University of Illinois at Chicago**, June 2019
 9. *Invited Talk*, Vikas Berry, “Chemical and Structural Manipulation of 2-D Nanomaterials and Their Heterostructures”, **University of Manchester**, June 2019
 10. *Invited Talk*, Vikas Berry, “Chemical and Structural Manipulation of 2-D Nanomaterials and Their Heterostructures”, **Argonne National Laboratory**, July 2018
 11. Sanjay K. Behura, and Vikas Berry, “Atomically precise Moiré fringes in 2D van der Waals heterostructures of graphene and h-BN” **Graphene and Beyond with Special US-EU 2D Sessions**, 2019
 12. Natechanok Yutthasaksunthorn, Sanjay K. Behura, and Vikas Berry, “Stabilizing Phosphorene via Hexagonal Boron Nitride Passivation” **AIChE Annual Meeting**, Pittsburgh, November, 2018
 13. Bijentimala Keisham¹, Akop Seksenyan, Steven Denyer, Pouyan Kheirkhah, Gregory D. Arnone, Pablo Avalos, Abhiraj D. Bhimani, Clive Svendsen, Vikas Berry*, Ankit I. Mehta*, “Graphene Based Sensing Platform for Studying Amyotrophic Lateral Sclerosis” **AIChE Annual Meeting**, Pittsburgh, November, 2018
 14. Chen Wang, Vikas Berry, and Sanjay K. Behura, “Achieving High Open-Circuit Voltage in Graphene/Silicon Photovoltaic Cells with h-BN Tunneling Layer” **AIChE Annual Meeting**, Pittsburgh, November, 2018
 15. Songwei Che, Sanjay Behura, Vikas Berry*, “One-step non-destructive decoration of transition metal oxide nanoparticles on large scale graphene for electronic and sensing applications” **AIChE Annual Meeting**, Pittsburgh, November, 2018
 16. Rousan Debbarma, Sanjay K. Behura*, Yu Wen, Songwei Che, and Vikas Berry*, “WS₂-Induced Enhanced Optical Absorption and Efficiency in Graphene/Silicon Heterojunction Photovoltaic Cells” **AIChE Annual Meeting**, Pittsburgh, November, 2018
 17. Sanjay K. Behura, Songwei Che, Chen Wang, Rousan Debbarma, Phong Nguyen, Michael R. Seacrist, and Vikas Berry*, “Atomically-Precise Van der Waals Heterostructures of Graphene and h-BN for 2D Circuits” **AIChE Annual Meeting**, Pittsburgh, November, 2018
 18. Natechanok Yutthasaksunthorn, Sanjay K. Behura*, and Vikas Berry*, “Stabilizing Phosphorene via Hexagonal Boron Nitride Passivation”, **Materials Research Society**, Boston, November 2018
 19. Sanjay K. Behura, Songwei Che, Phong Nguyen, Chen Wang, Rousan Debbarma, Michael R. Seacrist, and Vikas Berry, “Atomically-Precise van der Waals Heterostructures of 2D Materials”, **Materials Research Society**, Boston, November 2018
 20. *Invited Talk*, Vikas Berry, “Chemical and Structural Manipulation of Graphene and other 2D Nanomaterials for Electronics and Optoelectronics”, **Illinois Ignite International Symposium on Functional Materials**, Chandigarh, India, April, 2018

21. *Keynote Talk*, Vikas Berry, "Chemical and Structural Manipulation of Graphene and other 2D Nanomaterials for Electronics and Optoelectronics", **International Symposium on Functional Materials**, Chandigarh, India, April, 2018
22. *Invited Talk*, Shikai Deng, Enlai Gao, Soumyo Sen, Sreeprasad Sreenivasan, Sanjay Behura, Petr Kral, Zhiping Xu, Vikas Berry, "Confined, Oriented and Electrically Anisotropic Graphene Wrinkles on Bacteria", **Materials Research Society**, Boston, November 2017
23. Phong Nguyen, Sanjay Behura, Michael Seacrist, Vikas Berry, "Chemistry of Direct, Wafer-Scale and High-Quality Graphene Synthesis on Silicon-Based Dielectrics via Chemical Vapor Deposition", **Materials Research Society**, Boston, November 2017
24. Sanjay Behura, Phong Nguyen, Chen Wang, Songwei Che, Rousan Debbarma, Michael Seacrist, Vikas Berry, "All CVD Direct Growth of Large-Scale Graphene and Hexagonal Boron Nitride Heterostructures", **Materials Research Society**, Boston, November 2017
25. Songwei Che, Kabeer Jasuja, Sanjay Behura, T. S. Sreeprasad, and Vikas Berry, "Retained Carrier-Mobility and Enhanced Plasmonic-Photovoltaics of Graphene via Ring-Centered η_6 Functionalization and Nano-Interfacing", **Materials Research Society**, Boston, November 2017
26. Bijentimala Keisham, Arron Cole, Phong Nguyen, Ankit Mehta and Vikas Berry, "Cancer Cell Hyperactivity and Membrane Dipolarity Monitoring Via Raman Mapping of Interfaced Graphene: Towards Non-Invasive Cancer Diagnostics" **AICHE Annual Meeting**, Minneapolis, October, 2017
27. Deisy Arrington, Dylan Lynch and Vikas Berry, "Detailed Characterization and Fabrication of 3DPrinted Graphene/Polymer Structures Forheterojunction-Devices with MoS2 and Other 2D Nanomaterials" **AICHE Annual Meeting**, Minneapolis, October, 2017
28. Sanjay Behura, Kai-Chih Chang, Yu Wen, Rousan Debbarma, Phong Nguyen, Songwei Che, Shikai Deng, Michael Seacrist and Vikas Berry, "Photovoltaic and Spectral Response of WS2/Silicon Heterojunctions", **AICHE Annual Meeting**, Minneapolis, October, 2017
29. Sanjay Behura, Phong Nguyen, Chen Wang, Songwei Che, Rousan Debbarma, Michael R. Seacrist and Vikas Berry, "All CVD Direct Growth of Large-Scale Graphene and Hexagonal Boron Nitride Heterostructures", **AICHE Annual Meeting**, Minneapolis, October, 2017
30. *Invited Talk*, Vikas Berry, "Chemical, Interfacial, and Opto/Electronic Properties of CVD Grown Graphene, hBN, MoS2, WS2 and Their Heterostructures", **AICHE Annual Meeting**, Minneapolis, October, 2017
31. Sangil Kim, Aaditya Pdendse, Semih Cetindag, Sanjay Behura, Vikas Berry and Jerry Shan, "Boron-Nitride-Nanopore Membranes for Osmotic Power Harvesting", **AICHE Annual Meeting**, Minneapolis, October, 2017
32. Shikai Deng and Vikas Berry, "Wrinkled MoS2 Field-Effect Transistors", **AICHE Annual Meeting**, Minneapolis, October, 2017
33. Songwei Che, Kabeer Jasuja, Sanjay Behura, Phong Nguyen, Sreenivasan Sreeprasad and Vikas Berry, "Retained Carrier-Mobility and Enhanced Plasmonic-Photovoltaics of Graphene Via Ring-Centered η_6 Functionalization and Nano-Interfacing", **AICHE Annual Meeting**, Minneapolis, October 2017
34. *Invited Talk*, Vikas Berry, "Structural and Chemical Manipulation of Graphene", **Nanjing Technology University**, Nanjing, China, November 20, 2017
35. *Invited Talk*, Vikas Berry, "Structural and Chemical Manipulation of Graphene", **South Dakota School**

of Mines and Technology, Rapid City, SD, October, 2017

36. Deisy Arrington, Dylan Lynch, and Vikas Berry, "Detailed Characterization and Fabrication of 3D Printed Graphene/Polymer Structures for Heterojunction-Devices with MoS₂ and Other 2D Nanomaterials", **Argonne National Laboratory**, Chicago, May 8, 2017
37. Songwei Che, Kabeer Jasuja, Sanjay K. Behura, Phong Nguyen, T. S. Sreeprasad, and Vikas Berry, "Retained Carrier-Mobility and Enhanced Plasmonic-Photovoltaics of Graphene via ring-centered η6 Functionalization and Nano-Interfacing", **Argonne National Laboratory**, Chicago, May 8, 2017
38. Sanjay Behura, Kai-Chih Chang, Yu Wen, Rousan Debbarma, Phong Nguyen, Songwei Che, Shikai Deng, Michael R. Seacrist and Vikas Berry, "Photovoltaic and Spectral Response of Monolayer WS₂/Silicon Heterojunctions", **Argonne National Laboratory**, Chicago, May 8, 2017
39. Rousan Debbarma, Sanjay Behura, Yu Wen, Songwei Che, and Vikas Berry, "Improved Performance of Graphene-Silicon Solar Cells with Deposition of WS₂ Layers", **Argonne National Laboratory**, Chicago, May 8, 2017
40. *Invited Talk*, Vikas Berry, "Structural and Chemical Manipulation of Graphene", **Argonne National Laboratory**, Chicago, July 8, 2016
41. Shikai Deng, Enlai Gao, Yanlei Wang, Soumyo Sen, Sreeprasad Sreenivasan, Sanjay Behura, Petr Král, Zhiping Xu and Vikas Berry, "Electrical Properties of Controlled, Longitudinal Wrinkles on Graphene Produced Via Bacterial-Scaffold Shrinkage", **AICHE Annual Meeting**, San Francisco, November, 2016
42. Songwei Che, Phong Nguyen, Sanjay Behura, Kabeer Jasuja, Sreeprasad Sreenivasan and Vikas Berry, "Vapor-Phase Eta-6 Functionalization of Graphene with Retained Charge Carrier Mobility", **AICHE Annual Meeting**, San Francisco, November, 2016
43. Phong Nguyen, Sanjay Behura, Rousan Debbarma, Michael Seacrist and Vikas Berry, "Mechanism of Direct Growth of Graphene on Si-Based Dielectric Substrates Via Cu Grain Boundaries", **AICHE Annual Meeting**, San Francisco, November, 2016
44. Rousan Debbarma, Sanjay Behura, Phong Nguyen, Sreeprasad Sreenivasan and Vikas Berry, "Electrical Transport and Network Percolation in Graphene and Boron Nitride Mixed-Platelet Structures", **AICHE Annual Meeting**, San Francisco, November, 2016
45. Bijentimala Keisham, Arron Cole, Phong Nguyen, Ankit Mehta and Vikas Berry, "Micro-Raman Phonon-Energy Mapping of Cell/Graphene Interface for Non-Invasive Cancer Diagnosis Via Ultrasensitive Cellular Potential and Activity Measurements", **AICHE Annual Meeting**, San Francisco, November, 2016
46. Bijentimala Keisham, Arron Cole, Phong Nguyen, Ankit Mehta and Vikas Berry, "Micro-Raman Phonon-Energy Mapping of Cell/Graphene Interface for Non-Invasive Cancer Diagnosis Via Ultrasensitive Cellular Potential and Activity Measurements", **AICHE Midwest Regional Conference**, Chicago, Feb 2016
47. Sanjay Behura, Kai-Chih Chang, Rousan Debbarma, Phong Nguyen, Michael R. Seacrist, and Vikas Berry, "Directly Grown WS₂/p-Si Heterojunction for Photovoltaics", **MRS**, Boston, Nov 2016
48. Sanjay Behura, Phong Nguyen, Rousan Debbarma, Songwei Che, Michael R. Seacrist, and Vikas Berry, "Direct Growth of Large-Area, Ultra-Smooth Hexagonal Boron Nitride for Graphene Heterostructures: Towards Scalable 2D-Heterostructured Circuitry", **MRS**, Boston, Nov 2016
49. Shikai Deng, Enlai Gao, Yanlei Wang, Soumyo Sen, T. S. Sreeprasad, Sanjay Behura, Petr Kral, Zhiping

- Xu, Vikas Berry, "Confined, Oriented and Electrically Anisotropic Graphene Wrinkles on Bacteria", **MRS**, Boston, Nov 2016
50. Songwei Che, Phong Nguyen, Sanjay Behura, Kabeer Jasuja, Sreeprasad Sreenivasan, Vikas Berry, "Vapor-Phase eta-6 Functionalization of Graphene with Retained Charge Carrier Mobility", **MRS**, Boston, Nov 2016
 51. Shikai Deng, Vikas Berry, "Wrinkled MoS₂ Field-Effect Transistor", **MRS**, Boston, Nov 2016
 52. *Invited Talk*, Vikas Berry, "Structural and Chemical Manipulation of Graphene", **University of Central Florida**, Orlando, FL, Feb, 2017
 53. *Invited Lecture*, Vikas Berry, "Electrical Properties of Graphene", **University of Illinois at Chicago**, Chicago, CHE 494 Course Lecture, Feb 2017
 54. Nguyen, Phong, Sanjay Behura, Vikas Berry, and Mike Seacrist, "Direct Formation of Monolayer Graphene on Si-Based Dielectrics", **Argonne National Laboratory**, Chicago, October 8, 2015
 55. Deng, Shikai, Enlai Gao, Yanlei Wang, Soumyo Sen, T. S. Sreeprasad, Sanjay Behura, Petr Král, Zhiping Xu, and Vikas Berry, "Bio-Interfaced Wrinkling of Graphene Materials: Structure and Electrical Properties", **Argonne National Laboratory**, Chicago, October 8, 2015
 56. Behura, Sanjay, Phong Nguyen, Songwei Che, Rousan Debbarma, and Vikas Berry, "Direct Synthesis of Hexagonal Boron Nitride Films and Their Heterostructures with Transition Metal Dichalcogenides", **Argonne National Laboratory**, Chicago, October 8, 2015
 57. Sanjay Behura, Kai-Chih Chang, Rousan Debbarma, Phong Nguyen, Michael R. Seacrist, and Vikas Berry, "Photovoltaic Characteristics WS₂/p-Si Heterojunction Developed by Chemical Vapor Deposition", **MRS Fall Meeting 2015**, Nov. 29-Dec. 4, 2015, Boston, MA, USA.
 58. Songwei Che, Phong Nguyen, Sanjay Behura, Kabeer Jasuja, T. S. Sreeprasad, and Vikas Berry, "Vapor-phase eta-6 functionalization of graphene with retained charge carrier mobility", **MRS Fall Meeting 2015**, Nov. 29-Dec. 4, 2015, Boston, MA, USA.
 59. S. Behura, P. Nguyen, M. R. Seacrist, V. Berry, "High-quality, large-area, epitaxial growth of single-layer graphene on thin films of cobalt," **MRS Fall Meeting 2015**, Nov. 29-Dec. 4, 2015, Boston, MA, USA.
 60. Vikas Berry, "Structural and Chemical Manipulation of 2D Nanomaterials: Graphene, MoS₂, Boron Nitride" **Argonne National Laboratory**, Chicago, April 6, 2016
 61. Vikas Berry and Sanjay Behura, "*Development of 2D nanomaterials and Heterostructures for Nano and Opto-Electronics*", SunEdison Semiconductors, St. Luis, Nov 2015
 62. Shikai Deng, T. S. Sreeprasad, and Vikas Berry, "*Electrical Properties of Controlled, Longitudinal Wrinkles on Graphene Produced Via Bacterial-Scaffold Shrinkage*", **Electrochemical Society**, Chicago, May 2015
 63. Songwei Che, T. S. Sreeprasad, Phong Nguyen, and Vikas Berry, "*Eta6 chemical Modification of Epitaxial Graphene: An Avenue for Non Destructive Surface Functionalization and Atomic Layer Deposition*", **Electrochemical Society**, Chicago, May 2015
 64. Sanjay Behura, Rousan Debbarma, Phong Nguyen, T. S. Sreeprasad, and Vikas Berry, "*Chemically-Derived Graphene and Boron Nitride Heterostructures for Optoelectronic Applications*", **Electrochemical Society**, Chicago, May 2015
 65. Donovan Briggs, Phong Nguyen, Cody Fager, T. S. Sreeprasad, and Vikas Berry, "*Carrier Doping of Few-Layer MoS₂ with Ionic Polymers and MoS₂ Quantum Dots with Atmospheric Water*", **Electrochemical Society**, Chicago, May 2015

66. Vedhikha Tiruparkadal Parthasarathy, and Vikas Berry, "MoS₂ Devices Using Pencil Circuits", **Electrochemical Society**, Chicago, May 2015
67. **Keynote Talk**, Vikas Berry, "Graphene Based Biosensors", **ICREA Workshop on Graphene Nanobiosensors**, Barcelona, Spain May 2015
68. **Invited Talk**, Vikas Berry, "Graphene Nanotechnologies", **Georgia Tech**, Atlanta, April 2015
69. **Invited Talk**, Vikas Berry, "Graphene Nanotechnologies", **Illinois Institute of Technology**, Chicago, January 2015
70. **Invited Talk**, Vikas Berry, "The Fascinating World of 2D Array of Atoms: Graphene and MoS₂ based Electronics", **BioEngineering at University of Illinois at Chicago**, Chicago, Jan 2015
71. **Invited Talk**, Vikas Berry, "Wrinkling Graphene with Bacteria and Functionalization of MoS₂ for Electronic Applications", **ECS**, Cancun, September 2014
72. **Invited Talk**, Vikas Berry, "Arrays of Graphene Quantum Dots, Fabrication of Tapered Graphene Nanoribbons and Functionalization of 2D Nanomaterials for Electronic Applications", **Materials Research Society**, San Francisco, Spring 2014
73. Donovan Briggs and Vikas Berry, "Carrier Doping of Few-Layer MoS₂ with Ionic Polymers", **Materials Research Society**, San Francisco, Spring 2014
74. T. S. Sreeprasad, Phong Nguyen, Namhoon Kim, and Vikas Berry, "Controlled, Defect-Guided, Metal-Nanoparticle Incorporation onto MoS₂ via Chemical and Microwave Routes: Electrical, Thermal, and Structural Properties", **Materials Research Society**, San Francisco, Spring 2014
75. T. S. Sreeprasad, Phong Nguyen, Luke Hibbeler, Ahmed Alshogheathri, and Vikas Berry*, "Graphene Quantum Dot Based Bio-Electronic Device Operated by Bacterial Mechanics: Avenue for Bio-Hybrid Sensors", **Materials Research Society**, San Francisco, Spring 2014
76. Shikai Deng, T. S. Sreeprasad and Vikas Berry*, "Electrical Control via Precise Wrinkling of Graphene with Bacterial Cells", **Materials Research Society**, San Francisco, Spring 2014
77. **Invited Talk**, Vikas Berry, "Graphene Quantum Dots and MoS₂ Functionalization", **ICONSAT Conference**, Chandigarh, India, 2014
78. **Invited Talk**, Vikas Berry, "Graphene, a 2D Network of Carbon Atoms: Properties and Applications", **IISc Bangalore**, Bangalore, India, 2014
79. Vikas Berry, "Graphene, a 2D Network of Carbon Atoms: Properties and Applications of Graphene Quantum Materials and Graphene Encased Cells", **Graphene Brazil – 2013 Conference**, Buzius, Brazil, September 2013
80. **Invited Talk**, Vikas Berry, "Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms", **University of Illinois at Chicago**, Chicago, IL, May 2013
81. **Invited Talk**, Vikas Berry, "Graphene Encasement for Retaining the Wet-Behavior of Living Cells and Solution-Dispersed Nanomaterials", **American Chemical Society**, New Orleans, April 2013
82. **Invited Talk**, Vikas Berry, "Graphene Quantum Dots and Nanoribbons of Controlled Structural, Electrical and Optical Properties; and Graphenic Molecular Machines", **American Chemical Society**, New Orleans, April 2013
83. T. S. Sreeprasad, Phong Nguyen, Kabeer Jasuja and Vikas Berry, "η6 Chemical Modification of Epitaxial Graphene: An Avenue for Non Destructive Surface Functionalization and Atomic Layer Deposition", **Materials Research Society**, Mar 2013

84. Vasanta Pallem, Nihar Mohanty, and Vikas Berry, "Impermeable Graphene Encasements for Liquids, Living Cells and Solution-dispersed Nanomaterials", **Materials Research Society**, Mar 2013
85. T. S. Sreeprasad, Alfredo A. Rodriguez, Jonathan Colston, Augustus Graham, Evgeniy Shishkin, Vasanta Pallem, and Vikas Berry, "Oxidative Cutting of Graphene Nanoribbons into Quantum Dots and Electron-tunneling Modulation between Graphene Quantum Dots: Avenue for Novel Sensing Devices", **Materials Research Society**, Mar 2013
86. *Invited Talk*, Vikas Berry, "Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms", **Tufts University**, Medford, MA, Feb 2013
87. *Invited Talk*, Vikas Berry, "Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms", **Texas A&M**, College Station, TX, Feb 2013
88. *Invited Talk*, Vikas Berry, "Graphene-Based Sensors for Molecular-Mechanics", **University of Pittsburgh**, Pittsburgh, PA, Jan 2013
89. *Invited Talk*, Vikas Berry, "Graphene Sensors and Quantum Materials", **University of Kansas**, Lawrence, Sep 2012
90. *Invited Talk*, Vikas Berry, "Nanotomy of Graphite to Produce Graphene Nanostructures of Controlled Structure and Transport Properties; and Graphene-Based Sensors for Molecular-Mechanics", **University of Houston**, Houston, TX, Aug 2012
91. Vikas Berry, "eta-6 Chemical Modification of Graphene", **NSF-CMMI-Awardee Conference**, Boston, July 2012
92. *Invited Talk*, Vikas Berry, "Transferrable and Dispersible Graphene Nanostructures of Controlled Structural, Electrical and Optical Properties", **ECS**, Seattle, May 2012
93. *Invited Talk*, Vikas Berry, "Large-Scale Production of Transferrable and Dispersible Graphene Nanostructures of Controlled Structural, Electrical and Optical Properties; and Principles Defining Graphene-based Sensors reversible", **MRS**, San Francisco, Apr 2012
94. Phong Nguyen, T. S. Sreeprasad, Nihar Mohanty, Kabeer Jasuja, and Vikas Berry, "Reversible and Robust Carrier Doping in Graphene *via* Mechanical Actuation of Tethered Azobenzene", **APS**, Boston, Mar 2012
95. T. S. Sreeprasad, Nihar Mohanty, David Moore, Zhiping Xu, Ashvin Nagaraja, Alfredo A. Rodriguez, and Vikas Berry, "Lattice-Nanotomy for Large-Scale Production of Transferrable and Dispersible Graphene-Nanostructures of Controlled Shape and Size", **APS**, Boston, Mar 2012
96. T. S. Sreeprasad, Phong Nguyen, Joshua Podrebarac, Jenae Tate, and Vikas Berry, "Impermeable 'single-monolayer' Graphenic encasement of bacteria for high vacuum Transmission electron microscopy", **APS**, Boston, Mar 2012
97. T. S. Sreeprasad, Phong Nguyen, and Vikas Berry, "A study on tapered graphene nanoribbons with controlled angle: Fabrication and conductivity studies", **APS**, Boston, Mar 2012
98. Phong Nguyen, T. S. Sreeprasad, Kabeer Jasuja, and Vikas Berry, "eta-6 Chemical Modification of Epitaxial Graphene: An Avenue for Non Destructive Surface Functionalization and Atomic Layer Deposition", **APS**, Boston, Mar 2012
99. *Invited Talk*, Vikas Berry, "Graphene Science and Technology", **Kansas State University**, Course Lecture = DEN 399, February 2012
100. *Invited Talk*, Vikas Berry, "Principles Defining the Operation of a Novel Graphene-Based Molecular-

- Machine”, **University of Arkansas**, Fayetteville, AR February 2012
101. Vikas Berry, “*Tapered Graphene Nanoribbons of Controlled Tapering Angle: Structurally Tuning the Charge-Carrier Properties*”, **Office of Naval Research**, Monterey, CA December 2011
 102. *Plenary Lecture*, Vikas Berry, “Impact of Deformation on Properties and Devices of Graphene”, **Tsinghua University, Beijing, China**, Sep 2011
 103. *Invited Talk*, Vikas Berry, “Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms”, **Indian Institute of Technology**, New Delhi, India, Sep 2011
 104. Kabeer Jasuja, Kayum Ayinde, Christina Davis, Myles Ikenberry, Keith L. Hohn and Vikas Berry, “Synthesis of Solvent Dispersed Ultrathin Sheets of Boron Nitride” **AICHE**, Minneapolis, Oct 2011
 105. Nihar Mohanty, Ashvin Nagaraja, Monica Fahrenholtz, Daniel L. Boyle and Vikas Berry, “Impermeable Graphenic Wrapping of Bacteria” **AICHE**, Minneapolis, Oct 2011
 106. Phong Nguyen, Kabeer Jasuja, Mohanty Nihar and Vikas Berry, “Detecting Molecular Motion On Graphene: An Opto-Electromechanical Logic Device” **AICHE**, Minneapolis, Oct 2011
 107. Nihar Mohanty and Vikas Berry, “High-Throughput Production of Graphene Nanostructures (nanoribbons and quantum dots) with Controlled Dimensions and Smooth Edge Terminations” **AICHE**, Minneapolis, Oct 2011
 108. *Invited Talk*, Vikas Berry, “Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms”, **MEMC Inc**, Saint Louis, July 2011
 109. *Invited Talk*, Vikas Berry, “Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms”, **NSF GK-12 Talk**, Manhattan, KS, June 2011
 110. Phong Nguyen, Kabeer Jasuja, Nihar Mohanty, and Vikas Berry, “Molecular Mechanics on Graphene Surface and its Detection”, **APS**, Dallas, Mar 2011
 111. Vikas Berry, Nihar Mohanty, David Moore, and Ashvin Nagaraja, “Large-scale production of Graphene Nanoribbons with controlled width: Electrical Properties of Graphene Nanoribbon Films”, **APS**, Dallas, Mar 2011
 112. *Invited Talk*, Vikas Berry, “Graphene Research”, **Chemistry Graduate Seminar**, Chemistry Department, Kansas State University, Feb 2011
 113. *Invited Talk*, Vikas Berry, “Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms”, **UNL Seminar Series - Department of Engineering Mechanics**, University of Nebraska. Lincoln, NE, Feb 2011
 114. *Invited Talk*, Vikas Berry, “Graphene: Properties, Phenomena and Applications of a 2D Network of Carbon Atoms”, **Physics Colloquia Series**, Physics Department, Kansas State University, Nov 2010 (Invited)
 115. Kabeer Jasuja, Nathan Lechtenberg and Vikas Berry, “*Defect-Free Functionalization of Graphene for Building Ultrasensitive Graphene Biochemical Sensors*”, **AICHE**, Salt Lake City, UT, November 2010
 116. Kabeer Jasuja, Nihar Mohanty and Vikas Berry, “*Detection of Molecular Mechanics On Graphene Surface: An Electromechanical Logic Device*”, **AICHE**, Salt Lake City, UT, November 2010
 117. Kabeer Jasuja, Josh Linn and Vikas Berry, “*Microwave-Activated Functionalization of Bare-Surfaced Metal Nanoparticles On Graphene Derivatives: Avenue for Carrier Manipulation, Enhanced Catalytic Activity and Raman Amplification*”, **AICHE**, Salt Lake City, UT, November 2010
 118. Nihar Mohanty, Ashvin Nagaraja, Monica Frey, Daniel L. Boyle and Vikas Berry, “*Award Submission:*

- Live Bacterium Wrapping with Graphene Peptide Nano-Swaddler: a New Paradigm for Electron Microscopy and Raman Enhancement*", **AICHE**, Salt Lake City, UT, November 2010
119. Vikas Berry, Kabeer Jasuja, Nihar Mohanty, Ashvin Nagaraja, and Jose Armesto, " η 6 Chemical Modification of Epitaxial Graphene: A New Chemical Route for Atomic Layer Deposition and Fabricating Ultrasensitive Biological Sensors", **AICHE**, Salt Lake City, UT, November 2010
 120. Nihar Mohanty, Ashvin Nagaraja, Monica Frey, Daniel L. Boyle and Vikas Berry, "*Live Bacterium Wrapping with Graphene Peptide Nano-Swaddler: a New Paradigm for Electron Microscopy and Raman Enhancement*", **AICHE**, Salt Lake City, UT, November 2010
 121. **Invited Talk**, Vikas Berry, "*Chemical and Structural Modification of Graphene for Semiconducting and Bioelectronic Applications*", **Recent Advances in Graphene and Related Materials**, Singapore, Aug 2010
 122. Kabeer Jasuja, Vikas Berry, "*Bio-chemical functionalization of graphene for cancer cell detection*", **Annual Biochemical Engineering Symposium**, Manhattan, KS, Apr 2010
 123. Nihar Mohanty, Ashvin Nagaraja, Monica Frey, Vikas Berry, "*Live Bacterium Wrapping with Graphene Peptide Nano-Swaddler: a New Paradigm for Electron Microscopy and Raman Enhancement*", **Annual Biochemical Engineering Symposium**, Manhattan, KS, Apr 2010
 124. Nihar Mohanty, Angela D. Adams, Rebecca Horvat, Duy H. Hua, Vikas Berry, "*Ultrafast, Label-free detection of Pathogenic Bacteria via Peptide-modified-Graphene bio-sensor*", **Annual Biochemical Engineering Symposium**, Manhattan, KS, Apr 2010
 125. Vikas Berry, Kabeer Jasuja, Joshua Linn, " *π - π Functionalization of Graphene: Avenue for building Ultra-sensitive Graphene BioSensors*", **APS**, Portland, OR, March 2010
 126. Vikas Berry, Nihar Mohanty, Ashvin Nagaraja, Monica Frey, "*Bacterium Wrapping with Graphene for Non-destructive TEM Imaging and Raman Enhancement*", **APS**, Portland, OR, March 2010
 127. Vikas Berry, Nihar Mohanty, Ashvin Nagaraja, Jose Armesto, "*High-Throughput, Ultrafast Synthesis of Solution Dispersed Graphene via a Facile Hydride Chemistry*", **APS**, Portland, OR, March 2010
 128. Vikas Berry, Kabeer Jasuja, Nihar Mohanty, "*Detection of Molecular Mechanics on Graphene surface: An Electromechanical Logic Device*", **APS**, Portland, OR, March 2010
 129. Vikas Berry, Kabeer Jasuja, "*Real-Time Study of Stretching of Molecular Junctions between Nanoparticles: An Avenue to Build Molecular-Electromechanical Devices*", **AICHE**, Nashville, TN, November 2009
 130. Vikas Berry, Nihar Mohanty, Kabeer Jasuja, "*Reversible, Ultrafast Switching of Azo-Benzene-Tethered On Graphene FETs*", **AICHE**, Nashville, TN, November 2009
 131. Vikas Berry, Ashvin Nagaraja, Kabeer Jasuja, Nihar Mohanty, "*Ultrafast, Highly Sensitive Label-Free Pathogen Detection Via Chemically Modified Graphene (CMG) Sensors*" **AICHE**, Nashville, TN, November 2009
 132. Vikas Berry, Nihar Mohanty, Ashvin Nagaraja, and Jose Armesto, "*High-Throughput, Ultrafast Synthesis of Solution Dispersed High-Quality Graphene via a Novel Hydride Chemistry: Raman Spectra and Electrical Gating*", **AICHE**, Nashville, TN, November 2009
 133. Vikas Berry, Kabeer Jasuja, "*Novel Chemical Schemes to Functionalize Graphene without Introducing Defects: Avenue for Building Sensitive Graphene Sensors*", **AICHE**, Nashville, TN, November 2009
 134. Vikas Berry, Kabeer Jasuja, "*Dendritic (Snow-Flake-Shaped) Gold-Nanostructures Templated On Graphene: Tuning Electrical Properties and Raman Spectra*", **AICHE**, Nashville, TN, November 2009
 135. Vikas Berry, Kabeer Jasuja, Josh Linn, Steven Melton, "*Microwave Induced in-Situ Deposition of Gold and*

- Silver Nanostructures On Graphene: Avenue to Build Graphene-Metal Interfaces*", **AICHE**, Nashville, TN, November 2009
136. Vikas Berry, Nihar Mohanty, Ashvin Nagaraja, Monica Frey, "Wrapping of a Single Live Bacterium by Biochemically Modified Graphene (BMG) Sheets: Avenues to Build Nano-Biomachines", **AICHE**, Nashville, TN, November 2009
 137. **Invited Talk**, Vikas Berry, "On-Surface Biomodification and Molecular-interfacing of Graphene: Study of its Electrical and Structural Properties", **BACON**, Boston University, Boston, MA, June 2009
 138. Vikas Berry and Nihar Mohanty, "Effect of Single Bacterium Cell and DNA Attachment on the Electrical Properties of Chemically Modified Graphene Sheets", **APS**, Pittsburgh, PA, March 2009
 139. Vikas Berry and Kabeer Jasuja, "Microwave induced in-situ deposition of Gold and Silver nanoparticles on chemically modified sheets of graphene: Avenue to build Graphene-metal interface", **APS**, Pittsburgh, PA, March 2009
 140. Vikas Berry and Kabeer Jasuja, "Snow flake shaped gold nanostructures templated on graphene: an avenue to fabricate novel nano electronic devices", **APS**, Pittsburgh, PA, March 2009
 141. Vikas Berry and Kabeer Jasuja, "'Spring-Like' and Photo-actuated Junctions Between Nanoparticles", **APS**, Pittsburgh, PA, March 2009
 142. Vikas Berry and Nihar Mohanty, "Wrapping of a single bacterium with Functionalized - Chemically Modified Graphene (FCMG) sheets via highly specific protein-cell wall interaction", **APS**, Pittsburgh, PA, March 2009
 143. Vikas Berry, Nihar Mohanty, Kabeer Jasuja, Ashvin Nagaraja and Jose Armesto, "Graphene Modification to produce novel structures and devices", **Center of Biobased Polymers by Design - KSU**, January 2009
 144. Vikas Berry and Nihar Mohanty, "Attachment of Single Bacterium Cell, DNA and Single Molecules on Chemically Modified Graphene Sheets: Avenue to Build Smart Electrochemical Circuitry", **AICHE**, Philadelphia, PA, November 2008
 145. Vikas Berry and Kabeer Jasuja, "'Spring-Like' and Photomechanical Junctions Between Nanoparticles: An Avenue to Power Molecular-Machines by Compression Energy", **AICHE**, Philadelphia, PA, November 2008
 146. Vikas Berry and Kabeer Jasuja, "Spring-like molecular Junctions: An Avenue to Store Energy in Molecules to Power Molecular Machines", **Trends in Nanotechnology**, Oviedo, Spain, September 2008
 147. **Invited Talk**, Vikas Berry, Nihar Mohanty and Kabeer Jasuja, "Attachment of Single Molecules and biological components on Modified Graphene Sheets and Study of its Electronic Properties: Building Highly Sensitive Biomolecular Devices", **Indian Institute of Science**, Bangalore, India, June 2008
 148. Vikas Berry, Kabeer Jasuja, Nihar Mohanty, Arthur Thompson and Mark Battig, "Functionalized and Mechanical Molecular Junctions between Metal Nanoparticles", **Material Research Society**, San Francisco, CA, April 2008
 149. Kabeer Jasuja and Vikas Berry, "Photo-induced Molecular Mechanics to Produce Reversible Mechanical Motion of Nanocomponents: Avenue to Build Nanomachines", **Biochemical Engineering Symposium**, Iowa State University, March 2008
 150. Nihar Mohanty and Vikas Berry, "Biological Interfacing with Chemically Modified Graphene for Biosensing and Logic Devices", **Biochemical Engineering Symposium**, Iowa State University, March 2008
 151. **Invited Talk**, Vikas Berry, "Bionanotechnology and Cooperative Molecular Electronics", **Condensed Matter Group**, Department of Physics, Kansas State University, September 2007
 152. **Invited Talk**, Ravi Saraf, Vikas Berry, Sanjun Niu, Vivek Maheshwari, Jennifer Kane, "Electronic

Nanodevices on Biomolecules and Microorganism Scaffold ", **Material Research Society**, San Francisco, CA, April 2007

153. Vikas Berry, Ravi Saraf, "Humidity sensor based on tunneling barrier width modulation", **Heartland Biomedical Engineering Symposium**, Omaha, NE, April 2005
154. Vikas Berry, Ravi Saraf, "Nanodevice piggyback on bacteria", **American Physical Society** – March Conference, Los Angeles, CA, March 2005

KEY ADMINISTRATIVE ACCOMPLISHMENTS & ACTIVITIES

DEPARTMENT HEAD: 8/2015 - Current

KEY ACHIEVEMENTS:

- **New Building:** Moved the department into a new \$44M, state-of-the-art building in 2019.
 - Increased 60% research space for Chemical Engineering
 - Added capacity for three additional faculty members to the department.
 - Addressed two major challenges – department's location 1 mile away from the main campus and a shortage of laboratory space (and quality). Process:
 - Initiated a proposal in 2015 for a new building by showcasing the space-requirements, projected enrollments, and the financial model.
 - Presented the plan to the department, the dean's council and the chancellor in 2016. Maximized space for the department.
 - Worked on the design per the faculty needs in 2016. Construction: 2017-2019
- **Faculty Hiring:** Increased the faculty size by **41.6%** from 12 to 17. Added 4 core faculty members to a total of 11 (+57%).
 - One polymer expert with NSF-CAREER Award hired as Associate Professor.
 - Three *sought-after* candidates with multiple offers were hired as Assistant Professors. Each has received NSF funding.
- **Endowed Professorship:** Secured a \$500K endowment for a Professorship in Chemical Engineering (Satish Saxena Professorship). Search is underway.
- **Research Expenditures:** Increased research expenditures by 38% over three years. Increased # of submitted proposals by 93%. Increased research funding per year by 146% (from \$1.3M to \$3.2M).
- **Department Ranking:** Improved US-News department ranking from **74 (2015) to 63 (2019)** via extensive promotion.

EDUCATION PROGRAMS AND INITIATIVES

- **Added 5 new concentrations in ChE BS program (beginning Fall 2020):**
 - Molecular Engineering and Polymer Science
 - Nanotechnology
 - Energy and Sustainability
 - Process Simulations and Automation
 - Entrepreneurship and Intellectual Property
- **Initiated 3+2 China Program in 2016:** Joined 8 college of engineering level contracts in 2016.

- 22 students have enrolled so far. Average revenue per year = \$110K.
- Initiated 3+2 contracts with HEBUST university (2019) and Yunnan University (2019).
- **Started Graduate Acceleration Program (GAP) in 2018:** Partnered with Shorelight Education Inc., to build the complete curriculum for an exchange program.
- **Graduate Enrollments:** Increased graduate enrollments from 70 to 102 with the help of a hard-working graduate committee.

FACULTY MENTORING AND RESEARCH INITIATIVES

- **Mentoring Program:** Started a new Mentoring Program for junior faculty
 - Organized monthly lunches for assistant professors to meet with successful faculty (invited from the Chicago area). *Profs. Kim, Singh and Mehraeen have all received their first NSF Awards.*
 - Mentored Profs. Liu and Chaplin on NSF-ICORP. Ying received ICORP and Brian received POC.
 - Initiated a departmental NSF-CAREER Review Panel.
- **Publications:** Increased the publication rate from 1.5 (2015) to 3.5 (2019) publications per year per faculty.
 - Organize Publication Workshop for the graduate students.
- **PhD students per tenure-track faculty = 5.51 in 2019**
- **Collaborations for the Department:**
 - Nucleated key research-groups in the areas of polymer science, simulations, and energy
 - Initiated joint workshops with Argonne National Laboratory and the University of Chicago.
 - Started Chemical Engineering Research Symposium with panel discussions on Academic Job Search and Best Practices in Research in 2017

STUDENT PROGRAMS AND INITIATIVES

- Started Chem-E-Car program in UIC in 2017. In 2019, the team qualified for national competition.
- Started Chem-E Forum to enable interaction between Alumni, Industry and current students in 2016
- Started Annual Industry Day in 2016
- Alumni Day events were started in the department in 2016
- ChE bestowed its first Chemical Engineering Champion Award.
- Added 7 TA position in 2016 (from 9 to 16) for the department.

FACILITIES AND INFRASTRUCTURE

- **Infrastructure Renovation (Old Building):**
 - Teaching facility (\$89,000) with wall-to-wall whiteboards and electronic podiums.
 - Smart conference room.
 - Department library (\$12,000)
 - Wireless monitor in all faculty offices for research discussion and showcasing.
 - Hallway wall-art for all research groups.

- Unit operations laboratory.

STAFF HIRING AND MENTORING

- **Staff Hiring:** Hired three staff members: Roberto Rodriguez (Business Manager), Sarai Chavez (Administrative Assistant), and Jan Sagun (Lab Manager).
- **Staff Promotion:** Written letters of recommendations. Roberto Rodriguez, Jan Sagun and Karen Mila won the Outstanding Staff Award in 2019, 2018 and 2017, respectively.

OTHER DEPARTMENT ACTIVITIES/INITIATIVES

- **Department Promotion:**
 - Promotional Videos Created
 - Research Excellence: Youtube:
<https://www.youtube.com/watch?v=aMqqilgDJ64>
 - Educational Excellence: Underway
<https://uicmanager.sharestream.net/ssdcms/i.do?u=c099faf93efc499>
 - Promotional Memorabilia were designed.
 - Renovated the current building's entrance with monitors and corridors with research art.
 - Started AIChE receptions
 - Organized Prof. Paul Weiss's reception at Berry Residence
- **Department Operations:**
 - Written new bylaws for the department to smoothen the procedures.
 - Created several written documents and Memos for clarity of procedures.
 - Conducted regular faculty/staff meetings and worked with the auditors.
 - Made policies for ordering process, grant proposal writing, use of department funds, seminars, amending information on the website.
 - Managed an operating budget of \$3.2M for the department.
- **Faculty/Staff:**
 - Added five adjunct faculty members.
 - Nominated several faculty & staff members for awards.
 - Worked closely with the directors of graduate and undergraduate studies to improve curriculum, recruitment, and retention.
 - Prepared tenure and mid-tenure packages.
 - Conducted faculty and staff evaluations.
 - Directed all department committees.
 - Kept a close eye on student progress, faculty development, and staff morale.
- **Educational Programs:**
 - Led ABET data collection and IBHE data collection; and visits for undergraduate and graduate accreditation.
 - Managed course syllabus, assignments and schedule.
 - Worked with the industrial advisory board.
 - Worked with AIChE and ECS student organization on its activities and events.

SERVICE ACTIVITIES:

1. **Editorial Board Member of Nature's Scientific Reports (<http://www.nature.com/srep/eap-ebm/index.html#chemistry>)**
2. **Guest Editor for Journal of Nanomaterials and Molecular Nanotechnology**
3. **Served as a reviewer for several journals**
 - a. Science
 - b. Nature
 - c. Nature Nanotechnology
 - d. Nature Materials
 - e. Nature Communications
 - f. Scientific-Reports
 - g. Nature Protocols
 - h. Nano Letters
 - i. ACS-Nano
 - j. Angewandte Chemie
 - k. Journal of the American Chemical Society
 - l. Small
 - m. Advanced Materials
 - n. Nanoscale, Nanoresearch
 - o. IEEE-nano
 - p. The Analyst
 - q. Journal of Physical Chemistry
 - r. Chemistry of Materials
4. **Served as a reviewer for several grant-review panels and individual proposals:**
 - a. NSF (May 2017, Feb 2017, Dec 2014, Jan 2012, May 2011, Oct 2010, March 2010, Nov 2008, Nov 2007)
 - b. UIC: POC grants (Nov 2016), COE SEED (May 2016, 2015), Chancellor's Award (Nov 2015)
 - c. DoE (June 2013, Feb 2012)
 - d. NIH (June 2010, Nov 2009)
 - e. Wayne State University (March 2011): Reviewer for the *Research Enhancement Program in Physical Sciences* (1 proposal)
 - f. Netherlands Office of Science (Jul 2009): Reviewer for *Science for Global Development* program (1 proposal)
 - g. Czech Science Foundation (2017, 2014, 2013)
 - h. Ireland Science Office (March 2017)
5. **Conference Chair:**
 - a. International Symposium on Functional Materials, India (April 2018)
 - b. ICREA Workshop on Graphene Nanobiosensors – 2016
 - c. Recent Advanced in Graphene and Related materials: Chair; 2010 (Singapore)

- d. AIChE: Chair for “*Graphene and Carbon Nanotube Based Devices*”, (Nov 2018, 2017, 2016, 2015, 2014, 2013, 2012, 2011, 2010, 2009)
 - e. AIChE: Chair for “*Integration of Biological Systems with Electronic and Photonics*”, (Nov 2010, Nov 2011)
 - f. APS: Chair for “*Graphene Structure: Local Probes*”, Mar 2010
 - g. MRS: Chair 2017, 2012
6. **Scientific Board Member:**
- *Journal of Nanoscience Letters*
 - *All Results Journal – Nano*
7. Serve in the Graduate Committee (20 students)
8. Member of Materials Research Society, American Chemical Society, American Institute of Chemical Engineers, and American Physical Society
9. University/College/Department:
- a. Executive Committee Member, COE - UIC
 - b. Search Committee Member: Faculty, UIC.
 - c. Search Committee Member: Dean, College of Engineering (2013)
 - d. NSF-CAREER Workshop speaker (2012, 2013)
 - e. Search Committee Member: Assistant Professor (2014, 2012, 2011)
 - f. Tenure and Promotion Documentation Committee Member (2013)
 - g. Core Facilities Committee Member
 - h. PhD Qualification Process Committee member (2011)
 - i. Undergraduate Advisor.

RESEARCH NEWS FEATURED IN SCIENCE-NEWS PORTALS

VIDEOS/PODCASTS

1. **PODCAST IN MICROBE MAGAZINE (START AT 4:30):**
<http://www.microbeworld.org/podcasts/microbe-magazine-podcast/2193-how-bacteria-can-change-graphene-to-propel-rotors>
2. **FEATURED RESEARCH-EXCELLENCE VIDEO FOR THE STATE OF THE UNIVERSITY ADDRESS BY UNIVERSITY PRESIDENT:**
<http://youtu.be/YIJMV15c74k>
3. **PHOTONIC MEDIA:** <http://www.youtube.com/watch?v=mIVLgfYJknE#t=2m37s>
4. **AMERICAN CHEMICAL SOCIETY:** <http://pubs.acs.org/page/jpclcd/berry-video.html>
5. **K-STATE FEATURE:**
<http://www.youtube.com/watch?v=7VzPkuvGIn4&feature=edu&list=PLC476237DAF61390B>
6. **JOURNAL OF PHYSICAL CHEMISTRY:**
<http://www.slideshare.net/jpcoffice/hot-papersubmissionjpclberry>

News about Our Work and Our Commentary

1. **AZONANO**

Trickle-Down Graphene: An Interview with Dr. Vikas Berry

<https://www.azonano.com/article.aspx?ArticleID=4968>

2. YAHOO! 9 Amazing Uses for Graphene from Filtering Seawater to Smart Paint

<https://finance.yahoo.com/news/9-amazing-uses-graphene-filtering-111535322.html>

3. MEDICAL NEWS TODAY

https://www.medicalnewstoday.com/articles/317002.php?utm_campaign=trueAnthem:+Trending+Content&utm_content=58f9a2b104d3016a07a4eff0&utm_medium=trueAnthem&utm_source=twitter

4. MICROBE

<https://vikasb.people.uic.edu/microbe.pdf>

Graphene-Phononics for Detection of ALS and Neuro-Degenerative Diseases:

1. PHYS-ORG:

<https://phys.org/news/2018-12-graphene-als-neurodegenerative-diseases.html>

2. ALS NEWS-TODAY:

<https://alsnewstoday.com/2018/12/10/graphene-may-be-used-as-biomarker-identify-patients-als/>

3. RD MAG:

<https://www.rdmag.com/article/2019/01/graphene-could-help-diagnose-als>

4. NATURE INDIA:

<https://www.natureasia.com/en/nindia/article/10.1038/nindia.2018.171>

Trickle-Down Graphene (Growing Graphene Directly on Substrate):

1. AZONANO

Trickle-Down Graphene: An Interview with Dr. Vikas Berry

<https://www.azonano.com/article.aspx?ArticleID=4968>

2. NDTV

<https://gadgets.ndtv.com/science/news/new-trickle-down-method-developed-to-grow-graphene-1895881>

3. FINANCIAL EXPRESS

<https://www.financialexpress.com/industry/technology/team-led-by-indian-american-vikas-berry-develops-trickle-down-method-to-grow-graphene/1270857/>

Direct growth of hBN on silicon and silicon based substrates:

1. NATURE INDIA:

<http://www.natureasia.com/en/nindia/article/10.1038/nindia.2017.58>

Graphene-Phononics for Cancer Detection:

1. AICHE:

<https://www.aidh.org/chenected/2016/12/graphene-detects-brain-cancer-cells>

2. THE ENGINEER:

<https://www.theengineer.co.uk/graphene-used-to-identify-cancerous-cells/>

3. DIGITAL TRENDS:

<http://www.digitaltrends.com/cool-tech/graphene-detects-cancer-cells/>

4. **NEW ATLAS:**

<http://newatlas.com/graphene-cancer-detection/47044/>

Germs add ripples to make 'groovy' graphene:

1. **THE ECONOMIST:**

<http://www.economist.com/news/science-and-technology/21704743-bacteria-may-be-key-turning-graphene-semiconductor-bugs>

2. **PHYS-ORG:**

<http://phys.org/news/2016-07-germs-ripples-groovy-graphene.html>

3. **SCIENCE NEWSLINE, PHYSICS & CHEMISTRY:**

<http://www.sciencenewsline.com/news/2016071215310083.html>

Graphene-Quantum-Dot on Bacteria Electromechanical Device:

1. **WASHINGTON POST:**

<http://www.washingtonpost.com/news/morning-mix/wp/2015/04/09/those-nanobots-from-the-x-files-are-now-a-real-thing/?postshare=5231428576845674>

2. **WALL STREET JOURNAL:**

<http://www.wsj.com/articles/a-tiny-robot-senses-humidity-1427478730?tesla=y>

3. **SCIENCE DAILY**

4. **EE-TIMES**

5. **POPULAR SCIENCE**

6. **IEEE SPECTRUM**

7. **MOTHERBOARD**

8. **SCIENCE360**

9. **REDORBIT**

10. **NANOWERK**

11. **GIZMAG**

12. **THE ENGINEER**

13. **EXTREME TECH**

14. **R&D MAG**

15. **ESCIENCE NEWS**

16. **PHYS ORG**

17. **EUREKAALERT!**

18. **NANOTECHNOLOGY NOW**

Molybdenum Disulphide Coupled with Gold Nanoparticles to Enhance Gating Characteristics

1. **SCIENCE DAILY:**

<http://www.sciencedaily.com/releases/2013/09/130905112125.htm>

2. **IEEE SPECTRUM:**

<http://spectrum.ieee.org/nanoclast/semiconductors/nanotechnology/gold-nanoparticles-make->

- molybdenum-disulfide-extra-special
3. **KURZWEIL:** <http://www.kurzweilai.net/another-breakthrough-in-replacing-silicon-in-transistors>
 4. **SCIENCE WORLD REPORT:**
<http://www.scienceworldreport.com/articles/9387/20130910/advance-wonder-material-molybdenum-disulfide-brings-ultrathin-electronics-closer.htm>
 5. **EET-INDIA:**
http://www.eetindia.co.in/ART_8800689562_1800001_NT_418db36e.HTM?jumpto=view_welcomead_1379441588454
 6. **THE ENGINEER:** <http://www.theengineer.co.uk/channels/design-engineering/news/gold-standard-for-future-electronic-devices/1017061.article>

Graphene Quantum Dots Based Electron-Tunneling Sensors

1. **SCIENCE DAILY:**
<http://www.sciencedaily.com/releases/2013/05/130508131851.htm>
2. **PHYS-ORG:** <http://phys.org/news/2013-05-graphene-quantum-dots-humidity-pressure.html>
3. **e! SCIENCE NEWS:**
<http://esciencenews.com/articles/2013/05/08/researchers.use.graphene.quantum.dots.detect.humidity.and.pressure>
4. **ZEE-NEWS INDIA:** http://zeenews.india.com/news/space/improved-sensing-devices-may-someday-tell-if-it-will-rain-on-mars_848082.html
5. **NANO WERKS:**
http://www.nanowerk.com/news2/newsid=30411.php?utm_source=feedburner&utm_medium=twitter&utm_campaign=Feed%3A+nanowerk%2FagWB+%28Nanowerk+Nanotechnology+News%29

Graphene Quantum Dots and Nanoribbons Produced via Diamond Knife

1. **LASER FOCUS WORLD**
<http://www.laserfocusworld.com/news/2012/05/21/professor-uses-diamond-to-produce-graphene-quantum-dots-and-nano-ribbons-of-controlled-structure.html>
2. **AZO-NANO:** <http://www.azonano.com/news.aspx?newsID=24874>
3. **BIG NEXT FUTURE:** <http://nextbigfuture.com/2012/05/professor-uses-diamond-to-produce.html>
4. **THE ENGINEER:** <http://www.theengineer.co.uk/sectors/electronics/news/advance-in-graphene-quantum-dots-benefits-optoelectronics/1012647.article>
5. **FROGHEART:** <http://www.frogheart.ca/?p=6785>
6. **EE-TIMES:** http://www.eetindia.co.in/ART_8800667407_1800010_NT_b846de0d.HTM
7. **SCIENCE-DAILY:** <http://www.sciencedaily.com/releases/2012/05/120517193141.htm>
8. **NEW-ELECTRONICS:** <http://www.newelectronics.co.uk/electronics-news/us-researchers-make-graphene-breakthrough/42465/>

Bacterial Wrapping with Graphene

1. **NATURE MAGAZINE**
<http://www.nature.com/news/2010/100318/full/news.2010.134.html>

2. **CHEMICAL ENGINEERING PROGRESS:** <http://www.che.ksu.edu/~vberry/CEP-2011.pdf>
3. **MICROSCOPY TODAY:** <http://content.yudu.com/A1rzk/MTO19Issue4/resources/10.htm>
4. **CHEMPHYSICHEM FEATURE ARTICLE:**
<http://onlinelibrary.wiley.com/doi/10.1002/cphc.201100255/abstract;jsessionid=4A95B19D64D07A205EAF9468BDA13120.d03t01>
5. **PHYSICS WORLD:** http://physicsworld.com/blog/2009/03/fancy_a_bacterium_wrap.html
6. **PHYSORG:** <http://www.physorg.com/news/2011-03-graphene-cloak-bacteria.html>
7. **COSMOS MAGAZINE:** <http://www.cosmosmagazine.com/news/4157/new-graphene-cloak-spy-bacteria>
8. **SCIENCE DAILY:** <http://www.sciencedaily.com/releases/2011/03/110315130043.htm>
9. **MEDICAL NEWS TODAY:** <http://www.medicalnewstoday.com/articles/219256.php>
10. <http://news.softpedia.com/news/Graphene-Shrouds-for-Bacteria-Created-137867.shtml>
11. <http://nextbigfuture.com/2011/03/graphene-cloak-protects-bacteria.html>
12. http://esciencenews.com/articles/2011/03/15/all_wrapped.k.state.researchers.graphene.cloak.protects_bacteria.leading.better.images
13. <http://www.nanowerk.com/news/newsid=20545.php>
14. http://www.microbeworld.org/index.php?option=com_jlibrary&view=article&id=6180
15. <http://www.azonano.com/news.asp?newsID=21940>
16. **PHOTONIC MEDIA (discussion starts at 2:37):** <http://www.che.ksu.edu/~vberry/News.html>

Berry's Commentary on the 2010 Nobel Prize in Physics was published in Wiley:

1. **WILEY:** [http://onlinelibrary.wiley.com/journal/10.1002/\(ISSN\)1439-7641/homepage/news/14446.en.html](http://onlinelibrary.wiley.com/journal/10.1002/(ISSN)1439-7641/homepage/news/14446.en.html)
2. **NANOTECHWIRE:** <http://mobile.nanotechwire.com/news.asp?nid=10846>

NSF-CAREER Award

1. **NEWSWISE:** <http://www.newswise.com/articles/groundbreaker-chemical-engineer-earns-national-science-foundation-career-award-for-work-with-graphene-quantum-dots>
2. **AZONANO:** <http://www.azonano.com/news.asp?newsID=21602>

Graphene based Biointerfaced devices

1. **SCIENCE DAILY:** <http://www.sciencedaily.com/releases/2009/04/090413141256.htm>
2. **PHYSORG:** <http://www.physorg.com/news158850916.html>
3. **SCIENCE CENTRIC**
<http://www.sciencecentric.com/news/article.php?q=09041318-k-state-engineers-create-dna-sensors-that-could-identify-cancer>
4. **NANOTECH-NOW**
http://www.nanotech-now.com/news.cgi?story_id=32890
5. **MEDICAL NEWS TODAY**
http://www.medicalnewstoday.com/sections/medical_devices/

6. <http://www.reuters.com/article/pressRelease/idUS114792+13-Apr-2009+PRN20090413>
7. <http://www.bio-medicine.org/medicine-news-1/K-State-engineers-create-DNA-sensors-that-could-identify-cancer-using-material-only-one-atom-thick-42325-1/>
8. [http://www.labspaces.net/96954/DNA sensor that can identify cancer using material only one a tom thick](http://www.labspaces.net/96954/DNA%20sensor%20that%20can%20identify%20cancer%20using%20material%20only%20one%20atom%20thick)
9. http://www.eurekalert.org/pub_releases/2009-04/ksu-kec041309.php
10. <http://esciencenews.com/articles/2009/04/13/k.state.engineers.create.dna.sensors.could.identify.cance r.using.material.only.one.atom.thick>
11. <http://www.scienceblog.com/cms/dna-sensors-could-identify-cancer-using-material-only-one-atom-thick-20218.html>
12. <http://www.nanowerk.com/news/newsid=10067.php>
13. <http://news.prnewswire.com/ViewContent.aspx?ACCT=109&STORY=/www/story/04-13-2009/0005004962&EDATE=>
14. <http://www.newswise.com/articles/view/551084/?sc=rssn>
15. <http://www.azom.com/news.asp?newsID=16416>
16. <http://teguh.staff.uns.ac.id/category/research/>
17. <http://ca.sys-con.com/node/917513>
18. http://insciences.org/article.php?article_id=4257
19. <http://flashscience.net/2009/04/14/engineers-create-dna-sensors-that-could-identify-cancer-using-material-only-one-atom-thick/>
20. <http://www.individual.com/story.php?story=99335492>
21. [http://www.examiner.com/p-327965-Connecting Materials Science With Biology K State Engineers Create DNA Sensors T hat Could Identify Cancer Using Material Only One Atom Thick.html](http://www.examiner.com/p-327965-Connecting_Materials_Science_With_Biology_K_State_Engineers_Create_DNA_Sensors_That_Could_Identify_Cancer_Using_Material_Only_One_Atom_Thick.html)
22. <http://www.biowizard.com/news.php?id=3>
23. [http://www.medgadget.com/archives/2009/04/graphene thought to create biological microsensor. html](http://www.medgadget.com/archives/2009/04/graphene%20thought%20to%20create%20biological%20microsensor.html)
24. http://www.firstscience.com/home/news/breaking-news-all-topics/k-state-engineers-create-dna-sensors-that-could-identify-cancer-using-material-only-one-atom-thick-page-2-1_61914.html
25. <http://bx.businessweek.com/materials-science/connecting-materials-science-with-biology-k-state-engineers-create/11322962747977704081-e3ed9b5e9dc7ec48fd565ba7b15aa330/>
26. [http://www.forbes.com/feeds/prnewswire/2009/04/13/prnewswire200904131330PR NEWS USPR DC97870.html](http://www.forbes.com/feeds/prnewswire/2009/04/13/prnewswire200904131330PR_NEWS_USPR_DC97870.html)
27. <http://www.biosciencetechnology.com/ShowPR.aspx?PUBCODE=090&ACCT=9000000100&ISSUE=0904&RELTYPE=RLSN&PRODCODE=00000000&PRODLETT=J&CommonCount=0>
28. <http://scintilla.nature.com/node/664963>

Graphene-Gold Interfacing

1. **CHEMICAL ENGINEERING NEWS:** <http://www.aiche.org/uploadedFiles/CEP/Issues/2009-11/110904.pdf>
2. **SCIENCE DAILY:** <http://www.sciencedaily.com/releases/2009/10/091013112521.htm>

3. **PHYSORG:** <http://www.physorg.com/news174590038.html>
4. **NANOTECH-NOW:** http://www.nanotech-now.com/news.cgi?story_id=34988
5. http://www.eetindia.co.in/login.do?fromWhere=/ART_8800588578_1800007_NT_08b2a1c6.HTM

Other Commentaries:

1. **(UIC) Science News: For Nobel Laureate's Work Published in Nature**
<https://www.sciencenews.org/article/%E2%80%98impermeable%E2%80%99-graphene-yields-protons>
2. **Chemical & Engineering News:**
<http://cen.acs.org/signin.html?resource=/content/cen/articles/90/web/2012/01/Unexpected-Glow>

From PhD Work

1. **NATURE MAGAZINE:** <http://www.nature.com/nature/journal/v437/n7063/full/4371210a.html>
2. **SCIENCE NEWS:**
http://www.sciencenews.org/view/generic/id/6707/title/Bionic_Bacteria_Gold_nanoparticles_make_gadgets_of_living_microbes
3. **DISCOVER MAGAZINE:** <http://discovermagazine.com/2006/feb/cyborg-bacteria>
4. **MSNBC:** <http://www.msnbc.msn.com/id/9841437/>
5. **ROYAL SOCIETY OF CHEMISTRY:**
<http://www.rsc.org/chemistryworld/News/2005/October/12100501.asp>

CURRENT GROUP-MEMBERS AND ALUMNI (Faculty (F))

Post-Doctoral Fellow

1. Dr. T. S. Sreeprasad (F) Post-Doc, 2012-14 Assistant Professor UTEP
2. Dr. Sanjay Behura (F) Post-Doc, 2014-16 Assistant Professor UAPB
3. Dr. Vasanta Pallem Post-Doc, 2013 Deceased

Research Affiliates

1. Dr. Sanjay Behura (F) Res. Ast. Prof, 2017-20 Assistant Prof. UAPB

Graduate Students

1. Kabeer Jasuja (F) PhD 2011 Assistant Professor Indian Institute of Technology – Gandhinagar
2. Nihar Mohanty PhD 2011 Process Engineer Facebook Reality Lab
3. Phong Nguyen PhD 2016 Process Engineer Air-Liquide
4. Shikai Deng PhD 2017 Post-Doc Northwestern University
5. Songwei Che PhD 2018 Research Engineer Lam Research
6. Cheng Wang (F) PhD 2019 Assistant Professor Shanghai Institute of Microsystem and Information Technology
7. Nicki Keisham PhD 2019 Post-Doc University of Chicago

8.	Rousan Debbarma	PhD	2019	Post-Doc	Lund University, Sweden
9.	Deisy Fernandes	PhD	2020	Post-Doc	Brown University
10.	Hisham Middah (F)	PhD	2020	Assistant Professor	King Abdulziz University
11.	Aineta Kassa	MS	2019		
12.	Natechanok Yutthasaksunthorn	MS	2018	Researcher	SCG Inc
13.	Xin Yu	MS	2016	Process Engineer	Zeiss Microscopy, China
14.	Kai-Chih Chang	MS	2016		
15.	Vedhikha Parthasarathy	MS	2015	Engineer	ANB Systems
16.	Sheldon Cotts			PhD Candidate (expected 12/2022)	
17.	Sungjoon Kim			PhD Candidate (expected 12/2022)	
18.	Ngoc Hoang Lan Nguyen			PhD Candidate (expected 12/2022)	
19.	Roshan Nemade			PhD Candidate (expected 12/2023)	
20.	Alireza Ahmadian Yazdi			PhD Candidate (co-Advised with Jie Xu)	
21.	Namrata Murti			MS – Short Project	
22.	Arjun Rangoonwala			MS – Short Project	
23.	Anmole Jhally			MS – Short Project	
24.	Suprith			MS – Short Project	
25.	Donovan Briggs			MS Incomplete	

Undergraduate Students

26.	Alexis Miranda				
27.	Chris Mecinski				
28.	Ariane Gomes (Federal University of Cear�, Brazil)				
29.	Leonardo Marques (Brazil)				
30.	Alexander Crocker				
31.	Fayyazui Hassan				
32.	Craig Shaffer				
33.	Rosanna Granata				
34.	Jay Rawat				
35.	Roxanne Vitorillo				
36.	Fayyazul Hassan				
37.	Zamia Siddiqui				
38.	Ariane Gomes				
39.	Leo Anderson				
40.	Ahmed Alshogeathri				
41.	Luke Hibbeler				
42.	Fabian Martinez				
43.	Nolan McNeil				
44.	Monica Fahrenholz	PhD Candidate			Rice University
45.	Mark Battig	PhD Candidate			University of Connecticut

46. Ashvin Nagaraja	MS Candidate	Texas A&M University
47. Steven Melton	MS Candidate	Kansas State University
48. Christina Davis	PhD Candidate	University of Nebraska
49. Joshua Linn	Process Engineer	
50. Jose Armesto	Process Engineer	
51. Arthur Thompson	Process Engineer	Sprint Inc
52. Kayum Ayinde		
53. Nathan Lechtenberg		
54. Jonggeun Sung		
55. Cody Fager		
56. Alfredo A. Rodriguez		
57. Jonathan Colston		
58. Augustus Graham		
59. Evgeniy Shishkin,		
60. Namhoon Kim		
61. Nitya Jangam		
62. Jenaë Tate		