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IBS Center for Multidimensional Carbon Materials (IBS CMCM)
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Education

- 1988 Ph.D. Chemical Physics, University of Illinois-Urbana
Thesis: "Fourier-Transform Microwave Spectroscopy of Hydrogen-bonded
Trimers and of Conformer Relaxation in Free Jets"
(Prof. H. S. Gutowsky, research advisor).
- 1981 B.S. Chemistry, University of Texas-Austin, High Honors

Professional Experience

- Distinguished Professor, Department of Chemistry
School of Natural Science
School of Materials Science and Engineering
School of Energy and Chemical Engineering
Ulsan National Institute of Science and Technology (UNIST) Nov'13-Present
- Director of Center for Multidimensional Carbon Materials
Institute for Basic Science (IBS) Nov' 13-Present
- Cockrell Family Regents Chair
University of Texas at Austin Sept' 07-Dec 13
- John Evans Professor of Nanoengineering
Northwestern University 2003 – Aug' 2007
- Full Professor, Department of Mechanical Engineering
Director, NU BIMat Institute (A NASA URETI Institute)
Northwestern University, IL 2000 - 2007
- Associate Professor, Department of Physics
Washington University, MO 1997 - 2000
- Research Staff Scientist, Molecular Physics Laboratory 1991 – 1996

SRI International

Postdoctoral Fellow
IBM-Watson Research Laboratory 1990 – 1991

Fulbright Postdoctoral Fellow
Max Planck Institut fuer Stroemungsforschung, Goettingen, Germany 1989 - 1990

Professional Associations and Activities

Editorial Board Member: Composites Science & Technology
(http://www.elsevier.com/wps/find/journaldescription.cws_home/405929/description#description)

Managing Editor and Editorial Board Member, *NANO*, 2006 to Present
(<http://www.worldscinet.com/nano/nano.shtml>)

Editorial Advisory Board: Carbon (2008 to present)
(http://www.elsevier.com/wps/find/journaldescription.cws_home/258/description#description)

Advisory Board, *Nanoscale Horizons*, 2016 to Nov' 2019

Executive Council Member of *FlatChem*, June 2017 to Present

Advisory Board, *Research*, Mar' 2018 to Feb' 2021

Advisory Board, *Nano Materials Science*, Jan' 2019 to Present

Editorial Advisory Board, *MRS Bulletin Impact*, Jan' 2020 to present

International Advisory Board, *Advanced Materials*, Nov' 2020 to present

Scientific Advisory Board, Zyvex (former member)

External Advisory Board, Nanonet, State of Oklahoma (2004-2009)

Member, American Chemical Society; Korean Chemical Society

Member, American Physical Society; Korean Physical Society

Member, Materials Research Society; Korean Materials Research Society

Member, IEEE

Member, AVS

Member, Electrochemical Society

Member of ASME (previously, not now)

Member, The Minerals, Metals, & Materials Society (previously, not now)

Chairman of the Fullerenes Group, Electrochemical Society 1991 – 1998

Co-organized 14 professional society meetings (2 MRS, 1 APS, and 11 ECS)

U.S. organizer of NanoForum CH-US 2003, Swiss-US Forum on Nanoscience and
Nanotechnology with a focus on nanomechanics and Single Molecule Research

U.S. organizer of Inter-Pacific Workshop on Nanoscience and Nanotechnology with a focus
Nano/Bio Interface, Hong Kong, Nov 22-24, 2004

Awards & Honors

Fulbright Fellow, 1988-89, MPI fuer Stroemungsforschung, Goettingen, Germany

Distinguished Chair Visiting Professor, 2005-2007 and 2012-now, Sung Kyun Kwan University
Advanced Institute of NanoTechnology (SAINT)

Lee Hsun Lecture Award, 2009, Institute of Metal Research, Chinese Academy of Sciences, Shenyang, China

16th most cited materials scientist of top 100 most cited (<http://bucky-central.me.utexas.edu/RuoffsPDFs/THE%20Top%20100%20Materials%20Scientists>)

Thomson Reuters 2014 Highly Cited Researchers (Chemistry, Materials Science)
(<https://clarivate.co.kr/news/2014/06/04/2014-highly-cited-researcher/>)
Thomson Reuters 2015 Highly Cited Researchers (Chemistry, Physics, Materials Science)
Clarivate Analytics 2016 Highly Cited Researchers (Chemistry, Physics, Materials Science)
Clarivate Analytics 2017 Highly Cited Researchers (Chemistry, Physics, Materials Science)
Clarivate Analytics 2018 Highly Cited Researchers (Chemistry, Physics, Materials Science)
(<https://hcr.clarivate.com/>)
Web of Science 2019 Highly Cited Researchers (Chemistry, Materials Science)
Web of Science 2020 Highly Cited Researchers (Chemistry, Materials Science)
Web of Science 2021 Highly Cited Researchers (Chemistry, Materials Science)
Web of Science 2022 Highly Cited Researchers (Materials Science)
Ranked 1 in South Korea (575 in the world) among World's Top Scientists in 2022, 2022 Best Scientist Award, Research.com

David Turnbull Lectureship Award, 2014, Materials Research Society
SGL Carbon Award, 2016, American Carbon Society
James C. McGroddy Prize for New Materials, 2018 Recipient, American Physical Society (APS)
Listed as one of 17 top researchers of Citation Laureates 2018, Clarivate Analytics
The Ubbelohde Memorial Lecture, 2019 July 17th, The British Carbon Group
One of the Top 100 Researches in 2019 selected by Ministry of Science and ICT of Korea
Minister's Citation (Commendation), December 20, 2019, Ministry of Science and ICT, Korea
Hall of Citation Laureates, November 16, 2021, Clarivate Analytics
One of the Top 100 Researches in 2022 selected by Ministry of Science and ICT of Korea

Fellow, Materials Research Society (MRS), 2013
Fellow, American Physical Society (APS), 2011
Fellow, American Association for the Advancement of Science (AAAS), 2012
Fellow, Royal Society of Chemistry (FRSC), 2016 to Present
Honored Professor, University of Petroleum of China, 2016
Guest Professor, Chongqing University, 2016
Guest Professor, Tsinghua University (Graduate School at Shenzhen), 2016
"Master Forum" Chair Professor, Chongqing Institute of Green and Intelligent Technology, Chinese Academy of Sciences (CAS), 2016
Honorary Professor, Beijing University of Chemical Technology, 2017
Honored Professor, Shandong University of Science and Technology, 2017
Honorary Professor, Zhejiang University, 2017

Languages

English, some Spanish, some German

Citizenship

U.S.

Ruoff Group Current Research Efforts

Major interests include:

- 1 Synthesis, structure, and properties of novel materials including nanostructures and

- 2D materials; novel carbon materials (graphene, 2D diamond, diamond-including new routes to making diamond, nanotubes, sp³-sp² hybrids, negative curvature carbon, carbon nanofoams, boron nitride allotropes, other advanced materials)
- 2 Fabrication and properties of composites and nanocomposites
 - 3 Instrument development
 - 4 Global environment and energy

Ruoff Group Current Members

Postdoctoral Fellows

Anirban Kundu, Benjamin Cuning, Bharat Ugale, Da Luo, Meihui Wang, Pavel Bakharev, Rajmohan Rajendiran, Sun Haw Lee, Won Kyung Seong

Researcher

Youngwoo Hwang

Graduate Students

Alisher Fatkhulloev, Alisher Sultangaziyev, Dongho Jeon, Korlan Duisenova, Madi Arsakay, Minhyeok Kim, Sudipta Bag, Yan Gong, Yongqiang Meng

Undergraduate Students

Bayrammuhammet Annageldyyev, Rumi Lee

Visiting Research Fellows

N/A

Visiting Students

N/A

Ruoff Group Alumni

Jaehong Seo	MS-Ph.D. Student (2017 – 2022)	Researcher Samsung
Xuecheng Chen	Visiting research fellow (2021 – 2022)	Associate Professor West Pomeranian University of Technology
Liyuan Zhang	Senior Researcher (2019 – 2022)	Professor Central South Univeristy
Yunqing Li	Ph.D. Student (2018 – 2022)	
Dulce Camacho	Senior Research Fellow (2016 – 2022)	

Mengran Wang	Postdoctoral Research Associate (2020 – 2022)	Associate Professor Central South University
Bartosz Gurzeda	Visiting research fellow (2020 – 2021)	Assistant Professor Poznan University of Technology
Shahana Chatterjee	Senior Researcher (2016 – 2021)	
Boyuan Shen	Postdoctoral Research Associate (2020 – 2021)	Full professor Institute of Functional Nano and Soft Materials (FUNSOM), Soochow University
Kee Han LEE	Senior Researcher (2017 – 2021)	Senior Researcher LG Innotek
Chunhong Chen	Senior Researcher (2019 – 2020)	Postdoctoral Researcher, The Hong Kong Polytechnic University
Chunhui Wang	Senior Researcher (2016 – 2020)	Associate Professor, Yunna University
Onur Buyukcakir	Research Fellow (2015 – 2020)	Assistant Professor, Izmar Institute of Technology
Yi Jiang	Research Fellow (2015 – 2020)	Full Professor, Donghua University
Sunhwan Jin	Research Fellow (2015 – 2020)	Research Assistant Professor, UNIST
Guangwu Yang	Visiting research fellow (2019 – 2020)	Associate Professor, China University of Petroleum (UPC)
Recep Yuksel	Research Fellow (2017 – 2020)	Assistant Professor, Eskisehir Osmangazi University
Hanyang Zhang	Research Fellow (2018 – 2019)	Research Associate Professor, University of Science and Technology of China
Hui Yang	Visiting research fellow (2019)	Lecturer, Tianjin University
Ming Huang	Ph.D Student and Research Fellow (2014-2019)	Professor Univ. of Electronic Sci. and Tech. of China
Sangjun Oh	M.S. Student (2017 – 2019)	Staff ThermoFisher
Abozar Akbarivakilabadi	Research Fellow (2018 – 2019)	

Hyunju Nam	M.S. Student (2017 – 2019)	Center for Nutraceutical and Pharmaceutical Materials (CNPM)
Bin Wang	Research Fellow (2014 – 2018)	Professor, National Center for Nanoscience and Technology
Youngwoo Kwon	Researcher (2015 – 2018)	Staff Engineer, Samsung Electronics
Xiong Chen	Research Fellow (2014 – 2018)	Professor, Fuzhou University
Maloy Nayak	Research Fellow (2017 – 2018)	Team Lead Aurigene Pharmaceutical Services Limited
Mandakini Biswal	Research Fellow (2014 – 2018)	Senior Research Scientist, KPIT, Pune, India
Xu Zhang	Research Fellow (2013 – 2018)	Associate Professor, Beijing University of Technology
Bo Wang	Research Fellow (2017)	Associate Professor, Harbin Institute of Technology
Yuan Huang	Research Fellow (2015 – 2017)	Full Professor, Beijing Institute of Technology
Bao-Wen Li	Research Fellow (2013 – 2017)	Assistant Professor, Wuhan University of Technology, China
Manav Saxena	Research Fellow (2014 – 2017)	Assistant Professor, Jain University, India
Xianjue Chen	Research Fellow (2015 – 2017)	Lecturer, The University of Newcastle, Australia
Wei Li	Research Fellow (2014 – 2016)	Assistant Professor, Fudan University, China
Sung Ho Song	Research Fellow (2015 – 2016)	Assistant Professor, Kongju National University, S. Korea
Yufeng Hao	Research Fellow (2010 – 2014)	Professor of Materials Physics, Nanjing University, Nanjing, China
Jin Ho An	Postdoctoral Fellow (2007 - 2010)	Samsung, Seoul, South Korea

Sung Jin An	Postdoctoral Fellow (2008 – 2010)	Assistant Professor, Kumoh National Institute of Technology, South Korea
Kevin Ausman	Postdoctoral Fellow (1998 – 2000)	Assistant Professor, Department of Chemistry, Boise State University, Idaho
Colin Beal	Ph.D. Student (2008 – 2011)	Engineering Consultant
Weiwei Cai	Postdoctoral Fellow (2006 – 2010)	Professor, Department of Physics, Xiamen University, China
Donald Cantrell	Ph.D. Student (2004 – 2009)	Diagnostic Neurology Fellow, Northwestern University, USA
Shanshan Chen	Postdoctoral Fellow (2011 – 2012)	Associate Professor, Department of Physics, Xiamen University, China
Jaehyun Chung	Ph.D. Student(co-advisor) Postdoctoral Fellow (2004 – 2005)	Associate Professor, Department of Mechanical Engineering, University of Washington, Seattle, WA
Weiqiang Ding	Ph.D. Student & Postdoctoral Fellow (2000 – 2005)	Assistant Professor, Dept of Mechanical & Aeronautical Engineering, Clarkson University, Clarkson, NY
Geoffrey Dommett	Ph.D. Student (Physics) (2002 – 2007)	Chief Scientific Officer, Dommett Analytics, UK
Jonathan Edgeworth	Postdoctoral Fellow (2010 – 2011)	Managing Director, Moorfield Nanotechnology, UK
Frank Fisher	Postdoctoral Fellow (2002 – 2004)	Associate Professor, Nanomechanics and Nanomaterials Lab, Department of Mechanical Engineering, Stevens Institute of Technology, Castle Point on Hudson, Hoboken, NJ
Hui Huang	Postdoctoral Fellow (1998 – 2000)	Research Scientist, BioArray Solutions, Ltd., Warren, NJ
Zebin Huang	Master's Student (2002 – 2004)	Senior Engineer, Qualcomm, San Diego, CA
Steven Irons	Postdoctoral Fellow (1998 – 2000)	Lecturer / Director Instructional Labs, Yale University, New Haven, CT
Hengxing Ji	Postdoctoral Fellow (2010 – 2013)	Professor, 100-Talents, Chinese Academy of Sciences, University of Science and Technology, Hefei, China

Inhwa Jung	Ph.D. Student & Postdoctoral Fellow (2004 – 2008)	Assistant Professor, Department of Postdoctoral Fellow Mechanical Engineering, Kyung Hee University, South Korea
Kevin Kohlhass	Master's Student (2003 – 2005)	Samsung
Xianghua Kong	Postdoctoral Fellow (2012 – 2013)	Chinese Academy of Sciences, University of Science and Technology, Hefei, China
Wi Hyoung Lee	Postdoctoral Fellow (2010 – 2012)	Assistant Professor, Department of Textile Engineering, Konkuk University, South Korea
Xuesong Li	Postdoctoral Fellow (2007 – 2010)	Professor, University of Electronics Science and Technology
Oleg Lourie	Postdoctoral Fellow (1999 – 2001)	Applications Manager, GATAN Inc. Pleasanton, CA
Shaoning Lu	Ph.D. Student (2000 – 2005)	Senior Pad Engineer, Cabot Micro-electronics, Aurora, IL
Xuekun Lu	Postdoctoral Fellow (1997 – 2000)	Senior Research Associate, University of Minnesota, Minneapolis,
Will McBride	Master's Student (2002 – 2004)	Senior Technical Project Manager, Fastly, USA
Shanthi Murali	Ph.D. Student (2009 – 2012)	Assistant Vice President, iRunway, Austin, TX
Sungjin Park	Postdoctoral Fellow (2008 – 2010)	Associate Professor, Department of Chemistry, Inha University, Incheon, South Korea
Richard Piner	Postdoctoral Fellow (1999 – 2004)	Research Scientist, The University of Texas at Austin, Austin, TX
Jeff Potts	Ph.D. Student (2009 – 2012)	Baker Hughes, Houston, TX
Henry Rohrs	Postdoctoral Fellow (1998 – 2000)	Instrumentation Specialist, NIH/NCRR Biomedical Mass Spectrometry Facility, Washington University, St. Louis, MO
Meryl Stoller	Ph.D. Student (2008 – 2011)	Consultant, Austin, TX, USA
Sasha Stankovich	Postdoctoral Fellow (2003 – 2007)	Research Chemist, Milliken Company, Spartanburg, South Carolina

Abel Thangawng	Ph.D. Student (2002 – 2007)	Research Mechanical Engineer, Naval Research Laboratory, Washington, D.C.
Aruna Velamakanni	Postdoctoral Fellow (2007 – 2010)	Senior Research Chemist, Goodyear Tire and Rubber Company, Akron, OH
Supinda Watchar- Otone	Master's Student (2004 – 2006)	National Nanotechnology Center Otone (NANOTEC) Thailand
Hyoung Wook Ha	Postdoctoral Fellow (2009 – 2011)	Research Scientist, Samsung, Seoul, South Korea
Ting (Terry) Xu	Ph.D. Student (2000 – 2005)	Associate Professor, Department of Mechanical Engineering, University of North Carolina-Charlotte; Charlotte, NC
Dongxing Yang	Postdoctoral Fellow	Patent Attorney, Beijing, China
Jongpil Ye	Postdoctoral Fellow (2011 – 2012)	Professor, Department of Materials Science & Engineering, Inha University, Incheon, South Korea
Min-Feng Yu	Ph.D. Student (1997 – 2000)	Professor, School of Aerospace Engineering, Georgia Institute of Technology, Atlanta, GA
Li Li Zhang	Postdoctoral Fellow (2011 – 2012)	Research Scientist, Institute of Chemical and Engineering Sciences, Singapore
Yanwu Zhu	Postdoctoral Fellow (2009 – 2011)	Professor of Materials Physics, Department of Materials Science and Engineering, University of Science and Technology of China, Hefei China
Eric Zimney	Master's Student (2003 – 2006)	Stress Analyst, The Boeing Company, Seattle, WA

Journal Publications

569. Min-Ho Kim, Dong Yeon Kim, Yunqing Li, Jeongwoo Seo, Juyoung Kim, Myeong Seon Kim, Minhyeok Kim, Taewon Kim, Ukhyun Jung, Sang-Wook Park, Rodney Ruoff, Dong-Hwa Seo, Sunghwan Jin, Hyun-Wook Lee. **A single-crystal copper (111) current collector for anode-free lithium batteries.** ChemRxiv, 2023.
568. Shahana Chatterjee, Thomas Abadie, Meihui Wang, Omar K. Matar, Rodney S. Ruoff. **The Repeatability and Reproducibility Problem in the CVD Synthesis of 2D Materials: Towards a More Efficient and Sustainable Synthetic Process.** ChemRxiv, 2023.

567. Minju Song, Yoonkyum Kim, Du San Baek, Da Hwi Gu, Benjamin Cunning, Seong Eun Yang, Seung Hwa Heo, Seunghyun Lee, Jung-Woo Yoo, Sang Hoon Joo, Rodney S. Ruoff, Jae Sung Son. **3D microprinting of inorganic porous materials by chemical linking-induced solidification of nanocrystals**. Research Square, 2023.
566. Jae Hong Seo, Hyun Ju Nam, Onur Buyukcakir, Rajmohan Rajendiran, Won Kyung Seong, Yi Jiang, Min Hyeok Kim, Sun Hwa Lee, Rodney S. Ruoff. **Continuous production of hyperbranched polyhydrocarbons by electrochemical polymerization of chlorinated methanes**. Polymer Chemistry, 2022, 13: 5781-5788.
565. Jiaxin Li, Shuai Zhang, Yumeng Hua, Yichao Lin, Xin Wen, Ewa Mijowska, Tao Tang, Xuecheng Chen, Rodney S. Ruoff. **Facile synthesis of accordion-like porous carbon from waste PET bottles-based MIL-53(Al) and its application for high-performance Zn-ion capacitor**. Green Energy & Environment, 2023.
564. Fei Pan, Kun Ni, Tao Xu, Huaican Chem, Yusong Wang, Ke Gong, Cai Liu, Xin Li, Miao-Ling Lin, Shengyuan Li, Xia Wang, Wensheng Yan, Wen Yin, Pin-Heng Tan, Litao Sun, Dapeng Yu, Rodney S. Ruoff, Yanwu Zhu. **Long-range ordered porous carbons produced from C60**. Nature. 2022, 614: 95-101.
563. Chanhee Lee, Ming Huang, Da Luo, Ji-Eun Jang, Changhyun Park, Sujin Kang, Rodney S. Ruoff, Sunhwan Jin, Hyun-Wook Lee. **Using Single-Crystal Graphene to Form Arrays of Nanocapsules Enabling the Observation of Light Elements in Liquid Cell Transmission Electron Microscopy**. Nano Letters. 2022, 22(18): 7423-7431.
562. Myeonggi Choe, Da Luo, Meihui Wang, Ming Huang, Sunghwan Jin, Yunqing Li, Minhyeok Kim, Rodney S. Ruoff, Zonghoon Lee. **Structural Analysis for Highly Aligned Graphene Fold on Cu(111) Substrate**. Microscopy and Microanalysis. 2022, 28(S1): 2512-2514.
561. Shahana Chatterjee, Thomas Abadie, Meihui Wang, Omar K. Matar, Rodney S. Ruoff. **Inside the CVD "Black Box": A Physics-Driven Exploration of Reactor Conditions during Graphene Growth**. Chemistry of Materials. (2022, under review).
560. Yohan Kim, Huijun Han, Da Luo, Rodney S. Ruoff, Hyung-Joon Shin. **Decoupling of CVD-grown epitaxial graphene using NaCl intercalation**. Nanoscale. (2022), 14: 16929-16935.
559. Xin Li, Guilin Wu, Leining Zhang, Deping Huang, Yunqing Li, Ruiqi Zhang, Meng Li, Lin Zhu, Jing Guo, Tianlin Huang, Jun Shen, Xingzhan Wei, Ka Man Yu, Jichen Dong, Michael S. Altman, Rodney S. Ruoff, Yinwu Duan, Jie Yu, Zhujun Wang, Xiaoxu Huang, Feng Ding, Haofei Shi. **Single-crystal two-dimensional material epitaxy on tailored non-single-crystal substrates**. Nature Communications. (2022), 13(1): 1-8.
558. Haibin Sun, Fengning Liu, Leining Zhang, Ben McLean, Hao An, Ming Huang, Marc-Georg Willinger, Rodney Ruoff, Zhujun Wang, Feng Ding. **Bottom-up Growth of Graphene Nanospears and Nanoribbons**. Advanced Functional Materials. (2022), 32, 2206961.
557. Yunqing Li, Myeonggi Choe, Sunghwan Jin, Da Luo, Wonkyung Seong, Feng Ding, Zonghoon Lee, Rodney S. Ruoff. **Silica particle-mediated growth of single crystal graphene ribbons on Cu(111) foil**. Small. (2022), 2202536.
556. Yunqing Li, Yongchul Kim, Pavel V. Bakharev, Won Kyung Seong, Chohee Hyun, Dulce C. Camacho-Mojica, Liyuan Zhang, Benjamin V. Cunning, Tae Joo Shin, Geunsik Lee, and Rodney S. Ruoff. **Dissolving diamond: kinetics of the dissolution of (100) and (110) single crystals in nickel and cobalt films**. Chemistry of Materials. (2022), 34(6): 2599-2611.
555. Da Luo, Myeonggi Choe, Rafael A. Bizardo, Meihui Wang, Haisheng Su, Ming Huang, Sunghwan Jin,

- Yunqing Li, Minhyeok Kim, Nicola M. Pugno, Bin Ren, Zonghoon Lee, and Rodney Ruoff. **Folding and fracture of single crystal graphene grown on a Cu(111) foil**. *Advanced Materials*. (2022), 34(15): 2110509.
554. Yun-Ho Kang, Sangbong Lee, Youngwoo Choi, Won Kyung Seong, Kyu Hyo Han, Jang Hwan Kim, Hyun-Mi Kim, Seungbum Hong, Sun Hwa Lee, Rodney S. Ruoff, Ki-Bum Kim, Sang Ouk Kim. **Large-area Uniform 1-nm-level Amorphous Carbon Layers from 3D Conformal Polymer Brushes. A “Next-generation” Cu Diffusion Barrier?** *Advanced Materials*. (2022), 34(15): 2110454.
553. Junzhu Li, Mingguang Chen, Abdus Samad, Haocong Dong, Avijeet Ray, Junwei Zhang, Xiaochuan Jiang, Udo Schwingenschlögl, Jari Domke, Cailing Chen, Yu Han, Torsten Fritz, Rodney S. Ruoff, Bo Tian, Xixiang Zhang. **Wafer-scale single-crystal monolayer graphene grown on sapphire substrate**. *Nature Materials*. (2022), 1-8.
552. Dulce Carolina Camacho-Mojica, Jong-Kwon Ha, Seung Kyu Min, Robert Vianello, Rodney Ruoff. **Proton affinity and gas phase basicity of diamantoid molecules: diamantane to C₁₃₁H₁₁₆**. *Physical Chemistry Chemical Physics*. (2022), 24, 3470-3477.
551. Bartosz Gurzęda, Tae In Kim, Madi Arsayak, Myeonggi Choe, Sun Hwa Lee, Zonghoon Lee, Seung Kyu Min, and Rodney Ruoff. **Electrochemical Formation of Covalent-Ionic Stage-1 Graphite Intercalation Compound with Trifluoroacetic Acid**. *Chemistry of Materials*. (2021), 34(1), 217–231.
550. Karin Ching, Andy Baker, Ryoji Tanaka, Tingwen Zhao, Zhen Su, Rodney S. Ruoff, Chuan Zhao and Xianjue Chen. **Liquid-Phase Water Isotope Separation Using Graphene-Oxide Membranes**. *Carbon*. (2022), 186: 344-354.
549. Yuting Shen, Shi Su, Wen Zhao, Shaobo Cheng, Tao Xu, Kuibo Yin, Linjiang Chen, Longbing He, Yilong Zhou, Hengchang Bi, Shu Wan, Qiubo Zhang, Liang Wang, Zhenhua Ni, Florian Banhart, Gianluigi A. Bottom, Feng Ding, Rodney S. Ruoff, and Litao Sun. **Sub-4 nm Nanodiamonds from Graphene-Oxide and Nitrated Polycyclic Aromatic Hydrocarbons at 423 K**. *ACS Nano*. (2021), 15(11), 17392-17400.
548. Kyung Yeol Ma, Leining Zhang, Sunghwan Jin, Yan Wang, Seong In Yoon, Hyuntae Hwang, Da Sol Jeong, Juseung Oh, Da Sol Jeong, Meihui Wang, Shahana Chatterjee, Gwangwoo Kim, A-Rang Jang, Jieun Yang, Sunmin Ryu, Hu Young Jeong, Rodney S. Ruoff, Manish Chhowalla, Feng Ding and Hyeon Suk Shin. **Epitaxial Growth of Single-Crystal Few-Layer Hexagonal Boron Nitride on Ni (111)**. *Nature*. (2022), 606(7912): 88-93.
547. Mengran Wang, Won Kyung Seong, Minhyeok Kim, Shahana Chatterjee, Liyuan Zhang, Meihui Wang, Pavel V. Bakharev, Sun Hwa Lee, and Rodney S. Ruoff. **Controllable Electrodeposition of Ordered Carbon Nanowalls on Cu(111) Substrates**. *Materials Today* (2022), 57: 75-83.
546. Li Peng, Ying Han, Meihui Wang, Xiaoxue Cao, Yingjun Liu, Xianjue Chen, Bin Wang, Bo Wang, Chongyang Zhu, Xiao Wang, Ke Cao, Ming Huang, Benjamin V. Cunniff, Jintao Pang, Wendao Xu, Yibin Ying, Zhen Xu, Junfeng Gao, Wenzhang Fang, Yang Lu, Rodney S. Ruoff and Chao Gao. **Multifunctional macro-assembled graphene nanofilms with high crystallinity**. *Advanced Materials*. (2021), 2104195.
545. Yongqiang Meng, Jingbiao Fan, Meihui Wang, Wenbin Gong, Jinping Zhang, Junpeng Ma, Hongyu Mi, Yan Huang, Shu Yang, Rodney S. Ruoff and Jianxin Geng. **Encoding Enantiomeric Molecular Chiralities on Graphene Basal Planes**. *Angewandte Chemie*. (2022), 134(15): e202117815.
544. Keehan Lee, and Rodney S. Ruoff. **CVD Diamond growth: replacing the hot metallic filament with a hot graphite plate**. *Carbon*. (2022), 187: 396-403.

543. Le Quan, Chunhui Wang, Yali Xu, Jinlin Qiu, Hanyang Zhang, Benjamin Cunning, Ming Huang, Huijie Wei, Wonkyung Seong, Jaehong Seo, Huan Wang, Faxiang Qin, Jinfeng Zhu, Huaxin Peng*, Rodney S. Ruoff. **Electromagnetic Properties of Graphene Aerogels Made by Freeze-Casting**. Chemical Engineering Journal. (2021), 428, 131337.
542. Chunhui Wang, Ming Huang, and Rodney S. Ruoff. **Graphene Oxide Aerogel 'Ink' at Room Temperature, and Ordered Structures by Freeze Casting**. Carbon. (2021), 183, 620-627.
541. Hanyang Zhang, Sung O. Park, Jaehong Seo, Se Hun Joo, Ming Huang, Chunhui Wang, Meihui Wang, Sang Kyu Kwak, and Rodney S. Ruoff. **Topochemical Intercalation of Graphitic Carbon Nitride with Alkali Metals in Ethylenediamine**. The Journal of Physical Chemistry. (2021), 125(18): 9947-9955.
540. Shuaishuai Xu, Lipeng Zhang, Bin Wang, Rodney S. Ruoff. **Chemical vapor deposition of graphene on thin-metal films**. Cell Reports Physical Science, (2021), 100372.
539. Sun Hwa Lee, Jae Hong Seo, Eunhye Shin, Se Hun Joo, Onur Buyukcakir, Yi Jiang, Minhyeok Kim, Hyunju Nam, Sang Kyu Kwak, Rodney S. Ruoff. **Structural analysis of hyperbranched polyhydrocarbon synthesized by electrochemical polymerization**. Polymer Chemistry. (2022), 13, 5309-5315.
538. Meihui Wang, Ming Huang, Da Luo, Yunqing Li, Myeonggi Choe, Wonkyung Seong, Sunghwan Jin, Shahana Chatterjee, Youngwoo Kwon, Zonghoon Lee, and Rodney S. Ruoff. **Single Crystal, Large-area, Fold-free Monolayer Graphene**. Nature. (2021), 596, 519-524.
537. Patrick R. Whelan, Binbin Zhou, Odile Bezencenet, Abhay Shivayogimath, Neeraj Mishra, Qian Shen, Bjarke S. Jessen, Iwona Pasternak, David M. A. Mackenzie, Jie Ji, Cunzhi Sun, Pierre Seneor, Bruno Dlubak, Birong Luo, Frederik W. Østerberg, Deping Huang, Haofei Shi, Da Luo, Meihui Wang, Rodney S. Ruoff, Ben R. Conran, Clifford McAleese, Cedric Huyghebaert, Steven Brems, Timothy J. Booth, Ilargi Napal, Wlodek Strupinski, Dirch H. Petersen, Stiven Forti, Camilla Coletti, Alexandre Jouvray, Kenneth B. K. Teo, Alba Centeno, Amaia Zurutuza, Pierre Legagneux, Peter U. Jepsen and Peter Bøggild. **Case studies of electrical characterisation of graphene by terahertz time-domain spectroscopy**. 2D Materials. (2021), 8(2): 022003.
536. Xianjue Chen, Karin Ching, Aditya Rawal, Douglaas J. Lawes, Mohammad Tajik, William A. Donald, Chuan Zhao, Sun Hwa Lee, Rodney S. Ruoff. **Stage-1 cationic C60 intercalated graphene oxide films**. Carbon. (2021), 175: 131-140.
535. Francois-Marie Allieux, Salma Merhebi, Jianbo Tang, Chengchen Zhang, Andrea Merenda, Shengxiang Cai, Mohammad B. Ghasemian, Md Arifur Rahim, Maxime Maghe, Sean Lim, Lin Zhang, Lachlan Hyde, Mohannad Mayyas, Benjamin V. Cunning, Rodney S. Ruoff Kourosh Kalantar-Zadeh. **Carbonization of low thermal stability polymers at the interface of liquid metals**. Carbon. (2021), 171, 938-945.
534. Sunghwan Jin, Byunchul Kang, Taeyeong Kong, Soon Hung Hong, Hyung-Joon Shin, Rodney S. Ruoff. **Strain-induced abnormal grain growth of Fe foils**. Journal of Alloys and Compounds. (2020), 853, 157390.
533. Keehan Lee, Sun Hwa Lee, Rodney S. Ruoff. **Synthesis of Diamond-Like Carbon Nanofiber Films**. ACS Nano. (2020), 14(10), 13663-13672.
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Patents

Korea

- ♦ The method for manufacturing reduced graphene oxide flim (10-2016-0155892, 10-1977675)
- ♦ Monocrystalline metal foil and manufacturing method therefor (단결정 금속포일 및 이의 제조방법: KR 10-1878465; KR 10-1997545; PCT/KR2017/007438; US 16/317,332; AU 2017297850; CA 3029783; CN 201780043041.0; 10-2017-0160210; PCT/IB2018/059992)
- ♦ The method for manufacturing reduced graphene oxide film (KR 10-1977675, 10-2016-0155892)

USA, China and etc.

US9477128; US9412484; US8574681; US8470400; US8461028; US8309438; US7914844; US6284345; US5547748; US20160254102; US20160209124; US20160137507; US20150292112; US20150050482; US20130295367; US20110227000; US20110080689; US20110079748; US20100323177; US20100203340; US20100176351; US20100035093; US20020022124; WO2015038267; WO2015031788; WO2015031841; WO2012030415; WO2011116369; WO2011041663; WO2011029006; WO2011046775; WO2010091397; WO2010083378; WO2008143829; WO2009134707; WO2009023051; WO2008048295; WO1999029498; CN105492566; US5332723; US5356872; US 5547748; US 5685792

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33. Lee, J.; Tao, L.; Parrish, K. N.; Hao, Y. F.; Ruoff, R. S.; Akinwande, D., Highly Bendable High-mobility Graphene Field Effect Transistors with Multi-finger Embedded Gates on Flexible Substrates. *2012 12th IEEE Conference on Nanotechnology (IEEE-Nano)* **2012**.
34. Ruoff, R., Graphene-based and graphene-derived materials. *Abstr Pap Am Chem S* **2012**,243.
35. Ruoff, R. S., Graphene-based and graphene-derived materials for energy systems. *Abstr Pap Am Chem S* **2012**,244.
36. Zhang, Y.; Zhu, Y. W.; Ruoff, R. S.; Mark, J. E., Mechanical properties of poly (butadiene) (PBD) reinforced with nanosheets of octadecylamine modified graphene oxide (OMGO). *Abstr Pap Am Chem S* **2012**,244.
37. Kholmanov, I.; Kim, T.; Alieva, Z.; Kim, J. Y.; Ruoff, R., Permeation of metal ions through graphene-based membranes. *Abstr Pap Am Chem S* **2013**,246.

38. Ruoff, R. S., Graphene-based and graphene-derived materials for energy and fuels. *Abstr Pap Am Chem S* **2013**,245.
39. Ruoff, R. S., Graphene-based and graphene-derived materials, and a perspective on future materials, for energy storage and thermal management. *Abstr Pap Am Chem S* **2013**,245.
40. Ruoff, R. S., Graphene-based and graphene-derived materials. *Abstr Pap Am Chem S* **2013**,245.

Invited Presentations

A short list of many invited presentations is provided here:

1. Annual meetings of the ACS, MRS, APS, ECS, AiCHE, AVS, American Society of Composites (ASC), Society of Experimental Mechanics (SEM), ASME, Society of Experimental Science (SES), AVS, Advanced Coating Symposium of TAPPI
2. Invitations to the National Academy of Sciences (NAS); National Science Foundation; NASA Research Centers - Ames, Langley, Johnson, Marshall and Glenn; DOE Labs - Argonne, ORNL, LBL; workshops sponsored by ARO; Naval Research Laboratory; and the Air Force Research Laboratory
3. Invitations to a large number of universities, including (among others) in the United States: Auburn, Arizona, ASU, Cal Tech, UCSB, UCLA, UC-Berkeley, UC-Boulder, San Jose State, Stanford, Connecticut, Delaware, UIUC, Illinois-Chicago, Chicago, Northwestern, Purdue, Kansas State, Kentucky, Louisville, Harvard, Michigan, Washington U. - St. Louis, Cornell, Rochester, Brown, Rutgers, Princeton, North Carolina -Chapel Hill, North Carolina State, Ohio State, Dayton, Case Western, Oklahoma, Oklahoma State, Pennsylvania, Carnegie Mellon, South Carolina, Texas-Austin, Rice, Wisconsin-Madison, Texas A&M, Rice, MIT, Boston College, Univ. of Rochester, Texas State, University of Texas-Dallas, University of Houston, and others
4. Invited lectures abroad include: Switzerland: Univ. of Basel, Univ. of Fribourg, EPFL, ETH Zurich; Japan: U. Tokyo, Mie University, Nagoya University, Tokyo Metropolitan University, NIMC (a national lab located in Tsukuba, Japan); Mexico: UNAM (Mexico City), Univ. of Queretaro (Queretaro, Mexico); Colombia: Univ. de los Andes and National University (Bogota), Univ. del Valle (Cali), Univ de Antioquia (Medellin); Canada: Univ. of Toronto, Univ of Alberta; Hong Kong: City University of Hong Kong and HKUST; Italy: Univ. of Perugia; Russia: Moscow State University; South Korea: Seoul National University, KAIST, Yonsei University, Sungkyunkwan University; Greece: National University in Athens. Turkey: Bogacizi, Koc, ITU, Sabanci Universities, all in Istanbul, conferences held in Hong Kong, Basel, Paris, Tokyo, Berlin, Sussex, Perugia, Cancun, Buenos Aires, Toronto, Montreal, Quebec City, St. Petersburg, many others.
5. Invitations to industrial research labs: IBM Watson, IBM Almaden, Zyvex, DuPont, Dow Chemical (Midland, MI), Cabot Microelectronics, Inc., UOP LLC., Gas Technology Institute, Samsung, LG Chemical
6. Invitations to a number of trade or not-for-profit organizations such as the Chicago Micro Nano Community, the high-tech club of the Union Club of Chicago and others.

A detailed list of talks and visits since 2014

2023			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2023.04.17	Enabling advanced energy applications with low-dimensional materials (Wiley April Webinar)	Virtual Webinar	Invited talk
2022			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2022.03.20	ACS Spring 2022	Virtual Conference	Invited talk
2022.04.06	The Annual meeting of Korean Sensor Society (2022 KSS spring meeting)	Seoul, Korea	Plenary Speaker
2022.04.07	2022 Spring Meeting of the Korean Electrochemical Society	Jeju, Korea	Plenary Speaker
2022.05.20	The 32nd International Conference on Molecular Electronics and Devices (2022 IC ME&D)	Virtual Conference	Invited talk
2022.05.23	MRS Spring 2022	Virtual Conference	Invited talk
2022.06.08	The 15 th International Conference on New Diamond and Nano Carbons (NDNC2022)	Virtual Conference	Invited talk
2022.06.20	The 22nd International Conference on the Science and Applications of Nanotubes and Low-Dimensional Materials (NT22)	Virtual Conference	Invited talk
2022.07.05	Royal Australian Chemical Institute National Congress (RACI)	Virtual Conference	Plenary Speaker
2022.07.10	CAS Shenzhen Institutes of Advanced Technology, The Shenzhen Geim Graphene Center, Tsinghua shenzhen International Graduate School	Virtual Conference	Plenary Speaker
2022.07.25	Cornell University	Virtual Seminar	Invited talk
2022.08.22	ACS Fall 2022	Virtual Conference	Invited talk
2022.09.07	Pusan National University (BK21FOUR MICE교육연구단)	Busan, Korea	Invited talk
2022.10.28	The 2nd Kyoto University - UNIST Joint Symposium on Chemistry and Materials	Ulsan, Korea	Invited talk

	Science		
2022.11.15	KOFST 2022 BrainLink (Global Technology Networking for System Semiconductor Innovation)	Busan, Korea	Invited talk
2022.11.20	IEEE Nanotechnology Materials and Devices Conference	Virtual Conference	Plenary Speaker
2022.12.07	2022 Fall MRS Meeting	Virtual Conference	Invited talk
2021			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2021.01.20	Future directions in nanomaterial synthesis: from rational design to data-driven manufacturing (FDNS21)	Virtual Conference	Invited talk
2021.02.11	CarbOnlineHagen 2021	Virtual Conference	Invited talk
2021.02.15	The 6th International Conference on Advances in Functional Materials (AFM)	Virtual Conference	Plenary Speaker
2021.02.23	GRAPHENEforUS 2021	Virtual Conference	Keynote Speaker
2021.03.08	Multifunctional Electronic Materials and Processing (MEMP-2021)	Virtual Conference	Invited talk
2021.03.31	Hanyang University	Virtual Colloquium	Invited talk
2021.04.02	iCANX Talks	Online Public Talk	Invited talk
2021.04.27	Ulsan National Institute of Science and Technology	Virtual Seminar	Invited talk
2021.05.13	The 20 th Science Council of Asia Conference (SCA)	Virtual Conference	Invited talk
2021.05.19	The Israeli Graphene Consortium Conference	Virtual Conference	Plenary Speaker
2021.05.31	The 239th ECS Meeting	Virtual Conference	Plenary Speaker
2021.06.02	Pritzker School of Molecular Engineering The University of Chicago	Virtual Seminar	Invited talk
2021.06.07	The 14 th New Diamond and Nano Carbons Conference (NDNC 2020/2021)	Virtual Conference	Invited talk
2021.06.28	Online Webinar on Carbon Materials Science	Virtual Seminar	Invited talk
2021.08.18	International Conference on Advances in Functional Materials	Virtual Conference	Invited talk
2021.09.09	Research Cloud Live Talk	Virtual Seminar	Invited talk
2021.10.12	The 12th Recent Progress in Graphene and Two- dimensional Materials	Virtual Conference	Plenary Speaker

	Research Conference (RPGR 2021)		
2021.10.23	Beijing Graphene Forum 2021 (BGF 2021)	Virtual Conference	Keynote Speaker
2021.11.15	The 5th NMS Academic Forum	Virtual Seminar	Invited talk
2021.11.30	The Nanotechnology Centre of West Pomeranian University of Technology in Szczecin, Poland	Virtual Seminar	Invited talk
2021.12.06	The 12th International Conference on Advanced Materials and Devices (ICAMD 2021)	Virtual Conference	Plenary Speaker
2021.12.27	The 6th "Go to GO 2021" Graphene Oxide International Academic Forum and New Carbon Materials	Virtual Forum	Plenary Speaker
2020			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2020.10.26	IEEE Nanotechnology Materials and Devices Conference (IEEE NMDC 2020)	Virtual Conference	Keynote speaker
2020.11.04	The 6 th International Conference on Electronic Materials and Nanotechnology for Green Environment (ENGE 2020)	Virtual Conference	Invited talk
2019			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2019.01.21~22	Sungkyunkwan University (SKKU)	Seoul, Korea	Invited Speaker
2019.03.26.	Materials Research Science and Engineering Center (MRSEC), Columbia University	New York, USA	Invited talk
2019.03.28.	New York University	New York, USA	Invited talk
2019.04.01.	Cornell University	Ithaca, USA	Invited talk
2019.04.11.	2019 International Forum on Graphene in Shenzhen	Shenzhen, China	Plenary Speaker
2019.04.14.	Shenzhen University	Shenzhen, China	Invited talk
2019.05.03.	Yeungnam Univeristy	Gyeongsan, Korea	Plenary Speaker
2019.05.22.	Carbon & Materials Today Workshop	Seoul, Korea	Invited Speaker
2019.05.08.	Graphene Symposium in Ulsan	Ulsan, Korea	Plenary Speaker
2019.05.14.	The 13th New Diamond and Nano Carbons Conference (NDNC 2019)	Hualien, Taiwan	Invited Speaker
2019.06.26.	Agency for Defense Development (ADD)	Daejeon, Korea	Invited talk

2019.07.17.	The 8th INTL' Conference on Carbon NanoParticle based Composites(CNPComp2019)	London, UK	Keynote speaker
2019.08.19.	Materials Challenges in Alternative and Renewable Energy 2019 (MCARE2019)	Jeju, Korea	Invited speaker
2019.10.21.	The 9th International Workshop on Quantum Energy	Xiamen, China	Invited speaker
2019.10.24.	The 1st Kyoto University - UNIST Joint Symposium on Chemistry and Materials Science	Kyoto, Japan	Invited speaker
2019.11.07.	The 5th International Conference on Advanced Electromaterials (ICAE 2019)	Jeju, Korea	Plenary Speaker
2019.12.13.	Materials Research Meeting 2019 (MRM2019)	Yokohama, Japan	Keynote speaker
2019.12.18.	The 42nd Photonics & Electromagnetics Research Symposium (PIERS 2019)	Xiamen, China	Keynote speaker
2019.12.19.	Xiamen University	Xiamen, China	Invited speaker
2018			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2018.01.18~21	The Chinese University of Hong Kong (CUHK)	Hong Kong, China	Invited talk
2018.01.21~22	Xiamen University	Xiamen, China	Invited talk
2018.01.23~26	Sichuan University	Chengdu, China	Invited talk
2018.01.25	University of Electronic Science and Technology of China (UESTC)	Chengdu, China	Invited talk
2018.01.28	Chongqing University	Chongqing, China	Invited talk
2018.01.29	Chongqing Institute of Green and Intelligent Technology (CIGIT, CAS)	Chongqing, China	Invited talk
2018.03.04~07	APS March Meeting 2018	LA, USA	Invited talk
2018.03.08	University of California at Los Angeles (UCLA)	LA, USA	Invited talk
2018.03.09	California Institute of Technology (Caltech)	LA, USA	Invited talk
2018.04.02~05	2018 MRS Spring Meeting and Exhibit	Phoenix, US	Invited speaker
2018.05.05~08	The 31st Academic Annual Session of Chinese Chemical Society (CCS)	Hangzhou, China	Invited talks
2018.05.09	Zhejiang University	Hangzhou, China	Invited talk
2018.05.12	Qingdao University	Qingdao, China	Invited talk
2018.05.20~24	The 12th International New Diamond and Nano Carbons Conference (NDNC 2018)	Flagstaff, USA	Plenary speaker
2018.07.05	Cornell University	Ithaca, USA	Invited talk
2018.07.15~20	The 19th International Conference on the Science and Application of Nanotubes	Beijing, China	Keynote speaker

	and Low-dimensional Materials (NT18)		
2018.07.23	Imperial College London	London, UK	Invited talk
2018.07.25	University of Oxford	London, UK	Invited talk
2018.07.26	University of Cambridge	London, UK	Invited talk
2018.07.30	University of Electronic Science and Technology of China (UESTC)	Chengdu, China	Invited talk
2018.08.12~15	The 16th Korea-Japan-China International Symposium on Carbon Saves the Earth (CSE2018)	Ulanqab, China	Plenary speaker
2018.08.18~20	International Forum on Graphene Innovation and Industry in Xiamen 2018 (IFGI 2018)	Xiamen, China	Invited speaker
2018.09.11	Ulsan National Institute of Science and Technology	Ulsan, Korea	Invited talk
2018.09.12	Hanyang University	Seoul, Korea	Invited talk
2018.09.22	The 2nd International Conference of Molecular Engineering of Polymers (MEP-2 or MEP-2018)	Shanghai, China	Invited speaker
2018.10.25	Beijing Graphene Forum 2018	Beijing, China	Invited speaker
2018.10.31	The 3rd International Conference on Emerging Advanced Nanomaterials (ICEAN) 2018	Newcastle, Australia	Plenary speaker
2018.11.02	University of New South Wales Sydney (UNSW)	Sydney, Australia	Invited talk
2018.12.04	Sekisui Chemical Co.	Osaka, Japan	Invited talk
2018.12.05	The 12th SPSJ International Polymer Conference (IPC2018)	Hiroshima, Japan	Keynote speaker
2018.12.19	2018 U-Finder Day	Seoul, Korea	Keynote speaker
2017			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2017.01.05~08	Xiamen University	Xiamen, China	Invited talk
2017.01.08~10	Southern University of Science and Technology	Shenzhen, China	Invited talk
2017.01.10~13	Beijing University of Chemical Technology	Beijing, China	Invited talk
2017.01.20~23	Fudan University	Shanghai, China	Invited talk
2017.02.24	Materials Challenges in Alternative Renewable Energy 2017 (MCARE 2017)	Jeju, Korea	Invited speaker
2017.03.06	The 5 th INTL. Conference on Multifunctional, Hybrid and Nanomaterials	Lisbon, Portugal	Plenary speaker
2017.03.09	The International Iberian Nanotechnology Laboratory (INL)	Braga, Portugal	Invited talk
2017.03.10	The Mechanical Engineering	Lisbon, Portugal	Invited talk

	Institute (IDMEC - Instituto de Engenharia Mecânica)		
2017.04.10	The 4th International Forum on Graphene in Shenzhen	Shenzhen, China	Plenary speaker
2017.04.17	2017 MRS Spring Meeting and Exhibit	Phoenix, US	Invited speaker
2017.04.20	Arizona State University	Phoenix, US	Invited talk
2017.04.27	2017 Spring Conference of the Korean Institute of Metals and Materials	Changwon, Korea	Plenary speaker
2017.06.09~11	Frontiers of Nanochemistry-2017 (FNC-2017)	Beijing, China	Keynote speaker
2017.06.14	China University of Petroleum (UPC)	Qingdao, China	Invited talk
2017.06.15	Qingdao University of Science and Technology (QUST)	Qingdao, China	Invited talk
2017.06.15	Qingdao University	Qingdao, China	Invited talk
2017.06.21~23	ShanghaiTech Advances in Research Symposium 2017 (STAR 2017)	Shanghai, China	Invited speaker
2017.06.24~26	The 2nd International Symposium on NanoCarbons- Fullerenes, Endofullerenes, Carbon Nanotubes, Graphenes and Carbon Nanostructures	Wuhan, China	Invited speaker
2017.06.27	Fuzhou University	Fuzhou, China	Invited talk
2017.07.13	Cornell University	Ithaca, US	Invited talk
2017.07.22	The International Symposium on Carbon Research Frontiers 2017	Sydney, Australia	Invited speaker
2017.07.23~07.28	The World Conference on Carbon 2017: Carbon for Grand Challenges	Melbourne, Australia	Plenary speaker
2017.07.25	The University of Melbourne	Melbourne, Australia	Invited talk
2017.07.30~08.04	The 3rd Gordon Research Conference on Nano-Mechanical Interfaces in 2017	Hong Kong, China	Invited speaker
2017.08.03	The Hong Kong University of Science and Technology	Hong Kong, China	Invited talk
2017.08.04	Guangdong University of Technology	Guangzhou, China	Invited talk
2017.08.04	Sun Yat-Sen University	Guangzhou, China	Invited talk
2017.08.07	Southern University of Science and Technology (SUSTC)	Shenzhen, China	Invited talk
2017.08.29	Technische Universität Dresden (TU Dresden)	Dresden, Germany	Invited talk
2017.08.29~30	The 14th European Conference on Molecular Electronics (ECME 2017)	Dresden, Germany	Invited speaker

2017.09.19	Tsinghua University	Beijing, China	Visit
2017.09.20	Institute of Physics Chinese Academy of Science (IOP-CAS)	Beijing, China	Invited talk
2017.09.20	Beijing University	Beijing, China	Visit
2017.09.21	Institute of Chemistry, Chinese Academy of Sciences (ICCAS)	Beijing, China	Invited talk
2017.09.22	Center for High Pressure Science & Technology Advanced Research (HPSTAR in Beijing)	Beijing, China	Visit
2017.09.24~26	2017' International Graphene Innovation Conference (GRAPCHINA 2017)	Nanjing, China	Invited speaker
2017.09.27	Southeast University	Nanjing, China	Invited talk
2017.10.19~20	National Taiwan University	Taipei, Taiwan	Invited talk
2017.11.06	The 4th International Symposium on Hybrid Materials and Processing (HyMaP 2017)	Busan, Korea	Plenary speaker
2017.11.13~14	The 1st HYU-HPSTAR-CIS Symposium on High Pressure	Jeju, Korea	Plenary speaker
2017.12.05~06	The 3rd EU-Korea Workshop on Graphene and Related 2D Materials	Jeju, Korea	Invited talk
2017.12.07	The 10 th International Conference on Advanced Materials and Devices (ICAMD 2017)	Jeju, Korea	Invited talk
2016			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2016.01.19~23	The Center of Advanced Studies at Warsaw University of Technology	Warsaw, Poland	Invited talk
2016.02.05~03.05	National University of Singapore (NUS) / Nanyang Technological University (NTU)	Singapore, Singapore	Invited talks
2016.03.13~19	FUNSOM at Soochow Univ. / Nanjing Tech University	Suzhou, China Nanjing, China	Invited talks
2016.03.22~24	Mathematical Soft Matter Unit at the Okinawa Institute of Science and Technology (OIST)	Okinawa, Japan	Invited talk
2016.03.28~04.01	2016 MRS Spring Meeting and Exhibit	Phoenix, USA	Oral presentation
2016.04.14~04.15	The 3rd Korean Graphene Symposium	Buyeo, Korea	Keynote speaker
2016.04.26~04.27	Attend an invited seminar at KAIST	Daejeon, Korea	Invited talk
2016.05.22~05.28	The 10th International Conference on New	Xian, China	Invited speaker

	Diamond and Nano Carbons (NDNC 2016)		
2016.06.11~06.15	Nature Conference on Materials for Energy 2016	Wuhan, China	Keynote speaker
2016.07.09~08.01	Carbon 2016 / Cornell Univ. / UT Austin	University Park, US Ithaca, US Austin, US	Plenary speaker / Invited talk / Invited talk
2016.08.08~08.11	AFM 2016	Jeju, Korea	Invited speaker
2016.08.14~08.20	EU-Korea Flagship Workshop / Carbonhagen 2016	Copenhagen, Denmark	Oral presentation / Keynote speaker
2016.08.22~08.24	IVC-20	Busan, Korea	Invited speaker
2016.09.22~09.27	China University of Petroleum / GRAPCHINA 2016	Qingdao, China	Invited speaker / Plenary speaker
2016.09.28~09.29	RPGR 2016	Seoul, Korea	Keynote speaker
2016.10.23~10.31	Zhejiang University / iChEM 2016 IAB/AC meeting	Hangzhou, China Hefei, China	Invited talk / Keynote speaker
2016.11.07~11.10	Kyoto University / MNC 2016	Kyoto, Japan	Invited talk / Invited speaker
2016.11.11	Attend an invited seminar at Seoul National University (SNU)	Seoul, Korea	Invited talk
2016.11.16	Sejong University	Seoul, Korea	Invited talk
2016.11.23	Nanjing University	Nanjing, China	Invited talk
2016.11.24	The Sixth Element (Changzhou) Materials Technology Inc.	Changzhou, China	Invited talk
2016.11.25~28	Chongqing University	Chongqing, China	Invited talk
2016.12.01	The Hong Kong Polytechnic University (HKPU)	Hong Kong, China	Invited talk
2015			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2015.01.05~22	Nanyang Technological University (NTU)	Singapore, Singapore	Invited talk
2015.02.13~14	Kyushu University	Kyushu, Japan	Invited talk
2015.04.01	Sungkyunkwan University	Suwon, Korea	Invited talk
2015.04.06~09	2015 Spring MRS meeting	San Francisco	Oral presentation
2015.05.20~23	The International Forum on Graphene 2015	Shenzhen, China	Plenary speaker
2015.05.23~28	New Diamond and Nano Carbon Conference (NDNC)	Shizuoka, Japan	Oral presentation
2015.06.06~09	International Workshop on Graphene and C3N4-based Photocatalysts (IWGCP)	Wuhan, China	Oral presentation
2015.06.22~26	Graphene week 2015 in Manchester	Manchester UK	Plenary speaker
2015.07.01	NANO KOREA 2015	Seoul, Korea	Plenary speaker
2015.07.27~30	IEEE-NANO 2015	Rome, Italy	Plenary speaker
2015.08.09~14	IUPAC 48th General Assembly and 45th World Chemistry Congress	Busan, Korea	Plenary speaker

2015.09.03~05	ChinaNano 2015	Beijing, China	Plenary speaker
2015.09.07~09	The 49th FNTG conference	Kitakyushu, Japan	Plenary speaker
2015.09.14~15	IBS-Royal Society Conference	Buckinghamshire, UK	Plenary speaker
2015.10.08~09	International Workshop Cutting-to-the-Edge Nanomaterials	Beijing, China	Plenary speaker
2015.10.13~18	Graphene and Related Technologies	Istanbul, Turkey	Plenary speaker
2015.10.19	Samsung Conference on 2D Materials	Suwon, Korea	Plenary speaker
2015.10.25~29	The 7 th International Conference on Recent Progress in Graphene Research	Lorne, Australia	Plenary speaker
2015.10.30~31	The 1 st international Symposium on Energy Chemistry and Materials	Shanghai, China	Plenary speaker
2015.11.18~19	IBS Research Conference	Ulsan, Korea	Oral presentation
2015.12.01~04	2015 Fall MRS Meeting	Boston, US	Oral presentation
2015.12.15~20	Pacificchem	Hawaii, US	Oral presentation
2014			
Date (YY-MM-DD)	Talks & Visits	Location	Role
2014.03.03~07	American Physical Society Meeting	Colorado, US	Oral presentation
2014.04.16~18	Korean Chemistry Society	Ilsan, Korea	Oral presentation
2014.04.21~24	2014 Spring MRS meeting	San Francisco	Oral presentation
2014.05.06~09	Graphene Conference 2014	Toulouse, France	Plenary speaker
2014.05.25~29	New Diamond and Nano Carbon Conference	Chicago, US	Plenary speaker
2014.06.29~07.04	The World Conference on Carbon 2014	Jeju, Korea	Oral presentation
2014.09.01~03	GRAPCHINA 2014	Ningbo, China	Plenary speaker
2014.09.18~21	1 st International Symposium on Energy Conversion Materials and Devices (ECMD2014)	Hefei, China	Plenary speaker
2014.09.18~21	IBS Royal Society Meeting	Seoul, Korea	Oral presentation
2014.11.05~06	International Carbon Festival 2014 and Fall Meeting of KCS	Jeonju, Korea	Plenary speaker
2014.11.16~18	International Conference on Electronic Materials and Nanotechnology for Green Environment (ENGE 2014)	Jeju, Korea	Plenary speaker
2014.11.20	IBS Research Conference	Daejeon, Korea	Oral presentation
2014.12.03~05	2014 Fall MRS meeting	Boston, US	Oral presentation
2014.12.08	The 17 th International Symposium Physics of Semiconductors and Applications (ISPSA)	Jeju, Korea	Plenary speaker
2014.12.09~12	RACI National Congress	Adelaide, Australia	Oral presentation

Teaching Activities

At Northwestern University:

Nanotechnology (ME 385)

Manipulation of matter at the nanometer length scale to produce useful devices and materials; nanoscale sensors; mechanical & electrical systems; molecular electronics for memory and computing; novel materials; scientific and engineering properties of nanoscale systems. Students contribute a term paper and end-of-the-quarter oral presentation on the term paper.

Selected Topics in Nanotechnology (ME 495)

Studies on several topics related to nanotechnology; similar in format to ME 385 but at level appropriate for graduate students. Students contribute a term paper and end-of-the-quarter oral presentation on the term paper.

Nanotechnology: Manufacturing and Business Opportunities (ME 497)

This course assessed opportunities in manufacturing and in business related to the emerging field of nanotechnology. Invited speakers from the business community present their perspective on business opportunities & challenges presented by nanotechnology and also some of the manufacturing issues faced. Students from the Kellogg School of Business typically participated along with some employees of local Chicago-area companies.

Experimental Engineering (ME224)

This course covered instrumentation and the use of experiments to evaluate real-world systems. Basic, practical electronics, computer data acquisition, programming and signal conditioning are taught and then applied in experiments that investigate heat transfer, fluids mechanics, thermodynamics and structural dynamics.

Thermodynamics I (ME220)

The objective of the science of thermodynamics is to describe the state of matter and its interactions with surroundings in terms of macroscopic properties such as temperature, pressure, etc. The course introduced the fundamentals of the science of classical thermodynamics. Historical perspectives on the evolution of this field and its gradual development into a modern branch of science will be presented. The applications of the First and the Second Laws of thermodynamics to the analysis of performance and efficiency of pumps, compressors, turbines, nozzles, diffusers, and other engineering systems will be discussed.

At UT Austin:

Nanoscale Science and Technology (ME386Q)

Manipulation of matter at the nanometer length scale to produce useful devices and materials; nanoscale sensors; mechanical & electrical systems; molecular electronics for memory and computing; novel materials; scientific and engineering properties of nanoscale systems. Graduate students contribute a term paper and end-of-the-quarter oral presentation on the term paper.

Nanomaterials: Synthesis and Uses (ME386Q)

This graduate course covers the synthesis and uses of nanomaterials. Students contribute a term paper and end-of-the-quarter oral presentation on the term paper.

Global Environment and Engineering (ME 397). Issues related to both the global environment and engineering/science are presented and debated and discussed in this graduate class. Students contribute a term paper and end-of-the-quarter oral presentation on the term paper.