

Jinghua Guo, PhD, Senior Scientist

Contact Information

Address: Lawrence Berkeley National
Laboratory
1 Cyclotron Road
Berkeley, CA, 94720

Phone: (510) 495-2230
Email: jguo@lbl.gov

Education and Training

- PhD, Uppsala University, Physics, 1995
- MS, Shanghai Institute of Optics and Fine Mechanics, Physics, 1988
- BS, Zhejiang University, Engineering, 1985

Research and Professional Experience

Dr. GUO has 30 years of experience in X-ray photo science research and applications, and made innovative developments on in-situ/operando soft X-ray spectroscopy capability including X-ray absorption spectroscopy (XAS) and resonant inelastic X-ray scattering (RIXS), and applied in the research of Energy Materials, Catalysis and Chemical Science, characterization of electrode materials, electrolytes and interfacial phenomena of Li-ion, Mg-ion and Li-S batteries and electrochemical processes in general; has collaborated with JCESR's research group on Li-ion and Mg-ion battery research in the last 5 years.

Professional Experience

- Chair, Science Thrust Area: Chemical Transformation, Advanced Light Source, Lawrence Berkeley National Laboratory (2018 –)
- Lead, RIXS Program of Photon Science Operation, Advanced Light Source, Lawrence Berkeley National Laboratory (2018 –)
- Senior Scientist, Advanced Light Source, Lawrence Berkeley National Laboratory (2014 –)
- Lead, Topical Area Group of Energy and Catalysis at the Advanced Light Source, Lawrence Berkeley National Laboratory (2014 – 2018)
- Adjunct Professor, Department of Chemistry and Biochemistry, University of California, Santa Cruz (2012 – present)
- Staff Scientist, Advanced Light Source, Lawrence Berkeley National Laboratory (2004–2014)
- Research Scientist, Advanced Light Source, Lawrence Berkeley National Laboratory (2001 – 2004)
- Assistant Professor in Physics, Uppsala University, Sweden (1997 – 2001)
- Postdoctoral Researcher, Uppsala University, Sweden (1995 – 1997)

Fellowship, Award, Honor

- MRS Innovation in Materials Characterization Award (2020)
- Fellow of the American Physical Society (2014)
- Docent in Physics, Uppsala University, Sweden (2000)
- Early Career Research Award, National Science Foundation, Sweden (1997 – 2001)
- Ångströms Premium (Outstanding PhD Thesis Award), Uppsala University, Sweden (1997)
- Doctorial Fellowship, National Science Foundation, Sweden (1991 – 1995)

Professional Activities and Committee Service

- SAC Triennial Review Committee of NSLS-II beamline: In-situ and Operando Spectroscopy (IOS). NSLS-II, Brookhaven National Laboratory (September 19-20, 2018)

- Science Council, Advanced Light Source, Lawrence Berkeley National Laboratory (October 2018 –)
- Scientific Advisory Committee, Brazilian Synchrotron Light Laboratory (LNLS), Brazilian Center for Research in Energy and Materials (CNPEM), (January 2018 –)
- HZB Association Review Panel: “Scientific evaluation of the Helmholtz-Zentrum Berlin für Materialien und Energie”, Berlin (January 22-25, 2018)
- The Executive Committee of the Topical Group on Energy and Research Applications (GERA) of the American Physics Society (January 1, 2018 – December 31, 2020)
- Chair of the ALS Division Review, “Cross-Cutting Review of Energy Materials and Catalysis at the Advanced Light Source”, [including beamlines: 5.3.2.1/2, (6.0.1), 7.0.1.2, (7.3.1), 8.0.1, 9.3.1/2, 11.0.2 with participating beamlines: 8.3.2, 9.0.1/2, 11.3.1] (January 18-19, 2018)
- Division Diversity and Inclusion Committee, Advanced Light Source, Lawrence Berkeley National Laboratory (June 2017 – present)
- BES NSRC Review Committee, Triennial Operations peer review of Center for Functional Nanomaterials (CFN) in Brookhaven National Laboratory (September 17-19, 2013)

Reviewer for the Science Foundations

- The Natural Science Foundation, USA
- Natural Sciences and Engineering Research Council of Canada
- Research proposal, Mitacs, Inc. of Canada
- Swiss National Science Foundation
- The German Israeli Foundation for Scientific Research and Development, Germany
- Helmholtz-Gemeinschaft Deutscher Forschungszentren, Germany
- The Netherlands Foundation for Fundamental Research on Matter, FOM
- The Louisiana Board of Regents’ Research Competitiveness Subprogram, USA
- U.S. Civilian Research & Development Foundation (CRDF)
- US-Israel Binational Science Foundation

Publications

Dr. GUO has more than 450 publications in total, with an H-index 80 (Google scholar). The **five** most relevant are shown below.

1. Jinhyuk Lee, Daniil A. Kitchaev, Deok-Hwang Kwon, Chang-Wook Lee, Joseph K. Papp, Yi-Sheng Liu, Tan Shi, Zhengyan Lun, Bryan D. McCloskey, Jinghua Guo, Mahalingam Balasubramanian, and Gerd Ceder. Reversible Mn^{2+}/Mn^{4+} double redox in high capacity Li-excess cathode materials, *Nature*, DOI 10.1038/s41586-018-0015-4
2. Liang Zhang, Dan Sun, Jun Feng, Elton Cairns, Jinghua Guo. Revealing the Electrochemical Charging Mechanism of Nanosized Li_2S by in Situ and Operando X-ray Absorption Spectroscopy, *Nano Letters*, DOI 10.1021/acs.nanolett.7b02381
3. Kun Luo, Matthew Roberts, Rong Hao, Niccoló Guerrini, David Pickup, Yi-Sheng Liu, Kristina Edström, Jinghua Guo, Alan Chadwick, Laurent Duda, and Peter Bruce. Charge-compensation in 3d transition metal oxide intercalation cathodes through the generation of localised electron-holes on oxygen, *Nature Chemistry*, DOI 10.1038/nchem.2471
4. Michael Bagge-Hansen, Brandon C. Wood, Tadashi Ogitsu, Trevor M. Willey, Ich C. Tran, Arne Wittstock, Monika M. Biener, Matthew D. Merrill, Marcus A. Worsley, Minoru Otani, Cheng-Hao Chuang, David Prendergast, Jinghua Guo, Theodore F. Baumann, Tony van Buuren, Jürgen Biener, and Jonathan R. I. Lee. Potential-Induced Electronic Structure Changes in Supercapacitor Electrodes Observed by In Operando Soft X-Ray Spectroscopy, *Advanced Materials*, 10.1002/adma.201403680
5. Juan J. Velasco-Velez, Cheng Hao Wu, Tod A. Pascal, Liwen F. Wan, Jinghua Guo, David Prendergast and Miquel Salmeron. The structure of interfacial water on gold electrodes studied by X-ray absorption spectroscopy, *Science*, DOI 10.1126/science.1259437