
ROOPALI KUKREJA

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EDUCATION

Indian Institute of Technology Bombay, India	Metallurgical Eng. & Materials Science	B. Tech., 2008
Stanford University	Materials Science and Eng.	M.S., 2011
Stanford University	Materials Science and Eng.	PhD, 2014

PROFESSIONAL EXPERIENCE

July 2022 – Present	Associate Professor, Materials Science and Engineering, U.C. Davis, CA, USA
July 2016 – June 2022	Assistant Professor, Materials Science and Engineering, U.C. Davis, CA, USA
2014 – 2016	Postdoctoral Researcher, Center for Memory and Recording Research (CMRR)/ Dept. of Physics, U.C. San Diego, CA, US

HONORS AND DISTINCTIONS

- Scientific Missionary at the University of Paris-Saclay (2024)
- College of Engineering Outstanding Junior Faculty Award (2022)
- Awarded National Science Foundation (NSF) **CAREER Award** (2022)
- Awarded Department of Energy (**DOE**) **Early Career Research Program Award** (2021)
- Awarded American Physical Society (APS) Magnetism Outreach Award (2021)
- Awarded Nuclear Regulatory Commission (NRC) Faculty Development Award (2019)
- Awarded Air Force Office of Scientific Research (**AFOSR**) **Young Investigator Award** (2018)
- Nominated by College of Engineering for UCD Early Career for Creativity and Innovation (2017)
- **Melvin P. Klein scientific development award** at SSRL/LCLS User conference (2015)

PROFESSIONAL AND ACADEMIC ACTIVITIES

- Member of Scientific Advisory Board for Center of Nanoscale Materials at Argonne National Laboratory (2023-present)
- Proposal Review Panel (PRP) for ultrafast electron diffraction at SLAC National Laboratory (2024)
- Proposal Review Panel (PRP) for National Synchrotron Light Source II at Brookhaven National Laboratory (2021-present)
- Member of Proposal Evaluation Board (PEB) for Center of Nanoscale Materials at Argonne National Laboratory (2018-present)
- Member of Program Committee, Magnetism and Magnetic Materials Conference (2017-present)
- Panel Member for Scientific Advisory Committee (SAC) Review of Soft x-ray scattering program at NSLS-II (2023)
- Chair, Graduate Affairs Committee, UC Davis (2021-2023)
- Member of User Executive Committee (UEC) National Synchrotron Light Source II (2021-2023)
- Member of Executive Committee, American Physical Society (APS) Far West Section (2018-2021)

- Organizer, Focus Topic Session on Tools for Exploring Materials Physics at the Frontiers of Length, Time and Energy Scales, APS March Meeting (2021-2023)
- Member of Executive Committee, Magnetic Interfaces and Nanostructures Division of AVS: Science and Technology of Materials, Interfaces and Processing (2017-2020)
- Organizer, Focus Topic Session on Magnetic Oxide Thin Films APS March Meeting (2018)
- Session Chair/Reviewer, Annual Meeting of the APS Far West Section (2018, 2020), and Magnetism and Magnetic Materials Conference, Hawaii (2014, 2016, 2023)
- Courses Taught at UC Davis: Advanced Structure Properties of Materials, Preparing for Graduate Student Success, Magnetism and Complex Oxides (graduate), Processing of 2D and nanomaterials, Structure and Characterization of Engineering Materials, Properties of Materials, Materials for Processing, Strategies of Online Learning (undergraduate)
- Mentor, Graduate Student of Color (GSoC) Mentor Program to assist retention of junior scholars from historically marginalized communities, UC Davis (2016-present)
- Mentor, AvenueE Program to help community college students smoothly transition to STEM, UC Davis (2016-present)
- Mentor, Mathematics Engineering Science Achievement program to enhance STEM related education and college outreach to K-12 schools in Greater Sacramento Area, UC Davis (2018-present)
- Reviewer, Nature Communications, Physical Review Letters, Physical Review B, Journal of Applied Physics, Physics Review Applied, Magnetism and Magnetic Materials, Review of Scientific Instruments, Applied Physics Letters, Materials, Scripta Materialia
- Proposal Reviewer, DOE, NSF, Advanced Light Source (ALS), Center for Nanoscale Materials (CNM), NSLS-II, SSRL
- Member, American Physical Society and American Vacuum Society
- >60 Invited Talks including Invited Symposia Talks at APS March Meeting and Magnetic Materials and Magnetism Conference

PUBLICATIONS (SELECTED PUBLICATIONS FROM 44 PEER-REVIEWED PUBLICATIONS)

- 1. Evidence of extreme domain wall speeds under ultrafast optical excitation**, Rahul Jangid, Nanna Zhou Hagstrom, Meera Madhavi, Kyle Rockwell, Justin M. Shaw, Jeffrey Brock, Matteo Pancaldi, Dario De Angelis, Flavio Capotondi, Emanuele Pedersoli, Hans T. Nembach, Mark W Keller, Eric E Fullerton, Stefano Bonetti, Ezio Iacocca, Roopali Kukreja, Thomas J Silva, *Physical Review Letters* **131**, 256702 (2023), *Featured in Physics, Editor's Suggestion*
- 2. Photoinduced modification of optical properties of ferroelectric PZT thin films**, Saeed Yousefi, Nelson Hua, Jugal Mehta, Jianheng Li, Loic Guillemot, Geoffery Rippy, Louie Zhong, Richard Schaller, Thomas Maroutian, Kristoffer Haldrup, Sylvia Matzen, Roopali Kukreja, *MRS Communications, Early Career Materials Researcher Research Letter* **14**, 17 (2023)
- 3. Photoinduced structural dynamics of rare-earth nickelate thin films** Jugal Mehta, Scott Smith, Jianheng Li, Kenneth Ainslie, Nadia Albayati, Toyanath Joshi, Pooja Rao, Yu-Hsing Cheng, Spencer Jeppson, Rahul Jangid, Evguenia Karapetrova, Donald A. Walko, Haidan Wen, David Lederman, Roopali Kukreja, *Physical Review Materials* **7**, 096201 (2023)
- 4. Behavior of soda-lime silicate glasses under laser-driven shock compression up to 315 GPa**, Meera Madhavi, Rahul Jangid, Joyce Christiansen-Salameh, Yu-Hsing Cheng, Pooja Rao, Jianheng Li, Surya Teja

Botu, Spencer Jeppson, Jugal Mehta, Scott Smith, Jared T. Isobe, Sovanndra Hok, Rahul Saha, Eric Cunningham, Philip Heimann, Dmitri Khagani, Hae Ja Lee, D.K. Spaulding, Danae N. Polsin, Arianna E. Gleason, Roopali Kukreja, *Journal of Applied Physics* **133**, 175901 (2023)

5. Symmetry dependent ultrafast manipulation of nanoscale magnetic domains, Nanna Zhou Hagstrom, Rahul Jangid, Meera Madhavi, Diego Turnenne, Jeffrey Broack, Erik S. Lamb, Boyan Stoychev, Justine Schlappa, Natalia Gerasimova, Benjamin Van Kuiken, Rafel Gort, Laurent Mercadier, Loic Le Guyader, Andrey Samartsev, Andreas Scherz, Giuseppe Mercurio, Herman A. Durr, Alexander H. Reid, Monika Arora, Hans T. Nembach, Justin M. Shaw, Emmanuel Jal, Eric E Fullerton, Mark W Keller, Roopali Kukreja, Stefano Bonetti, Thomas J Silva, Ezio Iacocca, *Physical Review B* **106**, 224424 (2022) *Editor's Suggestion*

6. Observation of Collective Molecular Dynamics in a Chalcogenide Glass: Results from X-ray Photon Correlation Spectroscopy, Jianheng Li, Meera, Spencer Jeppson, Louie Zhong, Eric M. Dufresne, Bruce Aitken, Sabyasachi Sen, Roopali Kukreja, *Journal of Physical Chemistry B* **126**, 5320 (2022)

7. Capturing ultrafast magnetization phenomenon using femtosecond x-rays Spencer Jeppson and Roopali Kukreja, *Applied Physics Letters Materials* **9**, 100702 (2021) (**Invited Review Article*)

8. Understanding nanoscale structural distortions in $\text{Pb}(\text{ZrTi})\text{O}_3$ by utilizing x-ray nanodiffraction and clustering algorithm analysis Joyce Christiansen-Salameh, Morris Yang, Geoffrey Rippy, Jianheng Li, Zhonghou Cai, Martin Holt, Guillaume Agnus, Thomas Maroutian, Philippe Lecoeur, Sylvia Matzen, Roopali Kukreja, *Journal of Synchrotron Radiation* **28**, 207 (2021) (**Selected for cover*)

9. Domain fluctuations in ferroelectric low-strain BaTiO_3 thin film Jianheng Li, Louie Zhong, Rahul Jangid, Meera, Geoffrey Rippy, Kenneth Ainslie, Chris Kohne, Arnoud S. Everhardt, Beatriz Noheda, Yugang Zhang, Andrei Fluerasu, Sylvia Matzen, Roopali Kukreja *Physical Review Materials* **4**, 114409 (2020)

10. Dynamics at the crystal-melt interface in a supercooled chalcogenide liquid near the glass transition J. Li, R. Jangid, W. Zhu, C. Kohne, A. Fluerasu, Y. Zhang, S. Sen, and R. Kukreja, *Scientific Reports* **10**, 5881 (2020)

11. Structural and magnetic properties of FeCoMnCrSi multi-principal alloy R. Jangid, K.B. Ainslie, & R. Kukreja, *Journal of Materials Research* **35**, 981 (2020) (**Invited Article*)

12. X-ray nanodiffraction studies of ionically-controlled nanoscale phase separation in cobaltites Geoffrey Rippy, Lacey Trinh, Alexander Kane, Aleksey Ionin, Michael Lee, Rajesh Chopdekar, Martin Holt, Zhonghou Cai, Yayoi Takamura and Roopali Kukreja, *Phys. Rev. Mater* **3**, 082001 (2019)

13. Controlling shape memory effects in NiTi thin films grown on Ru seed layer Kenneth Ainslie, Cory Knick, Gabriel Smith, Jianheng Li, Charles Troxel, Apurva Mehta, Roopali Kukreja, *Sensors and Actuators: A. Physical* **294**, 133 (2019)

14. Tuning ultrafast photoinduced strain in ferroelectric based devices S. Matzen, L. Guillemot, S. Patel, T. Maroutian, G. Agnus, H. Wen, A. DiChiara, D. Ravelosona, P. Lecoeur, O. Shpyrko, E. Fullerton, R. Kukreja *Advanced Electronic Materials*. **5**, 1800709 (2019)

15. Orbital domain dynamics in magnetite below the Verwey transition R. Kukreja, N. Hua, J. Ruby, A. Barbour, W. Hu, C. Mazzoli, S. Wilkins, E.F. Fullerton and O.G. Shpyrko, *Phys. Rev. Lett.* **121**, 177601 (2018)

16. Photoinduced Enhancement of the Charge Density Wave Amplitude A. Singer, S. K. K. Patel, R. Kukreja, V. Uhlíř, J. Wingert, S. Festersen, D. Zhu, J. M. Głownia, H. T. Lemke, S. Nelson, M. Kozina, K. Rossnagel, M. Bauer, B. M. Murphy, O. M. Magnussen, E. E. Fullerton, and O. G. Shpyrko, *Phys. Rev. Lett.* **117**, 056401 (2016).