

Dr. Sarah B. King

Assistant Professor of Chemistry
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Professional Appointments

Assistant Professor of Chemistry	University of Chicago	Aug. 2023 – present
Neubauer Family Assistant Professor of Chemistry	University of Chicago	Aug. 2018 – Aug. 2023

Education

University of California, Berkeley , Ph.D. in Chemistry <i>Berkeley, CA, USA</i>	2015
Advisor: Prof. Daniel M. Neumark Dissertation: "Time-resolved radiation chemistry: dynamics of electron attachment to nucleobases and small molecules"	
Massachusetts Institute of Technology , <i>Cambridge, MA, USA</i>	2010

Research Experience

Postdoctoral Research Scientist	Feb. 2018 – Aug. 2018
Alexander von Humboldt Postdoctoral Research Fellow	Feb. 2016 – Feb. 2018
Max Planck Society Postdoctoral Research Fellow	Sept. 2015 – Feb. 2016
<i>Department of Physical Chemistry</i> <i>Fritz Haber Institute of the Max Planck Society</i> <i>Berlin, Germany</i>	
Graduate Research Assistant	Aug. 2013 – Aug. 2015
National Science Foundation Graduate Research Fellow	Aug. 2010 – Aug. 2013
<i>Research Group of Prof. Daniel. M. Neumark</i> <i>Department of Chemistry</i> <i>University of California, Berkeley</i> <i>Berkeley, CA, USA</i>	

Awards and Honors

Alfred P. Sloan Foundation Research Fellowship	2025
National Science Foundation CAREER Award	2025
NIH Maximizing Investigators' Research Award (R35)	2024
Kavli Fellow	2023
Cottrell Scholars Award, Research Corporation for Scientific Advancement	2023
Air Force Office of Scientific Research, Young Investigator Program	2022
Department of Energy Early Career Award	2021
Arnold and Mabel Beckman Foundation Young Investigator Program	2020
Neubauer Family Assistant Professorship	2018
Alexander von Humboldt Postdoctoral Research Fellowship	2015
National Science Foundation Graduate Research Fellowship	2010

Publications

At UChicago

1. J. Rieger, A. Ghosh, J. L. Spellberg, C. Raab, A. Mohan. P. P. Joshi, S. B. King[§], Imaging and Simulation of Surface Plasmon Polaritons on Layered 2D MXenes, *Sci. Adv.* **11**, eads3689 (2025)
2. P. P. Joshi, D. Unruh, N. Mirzajani, T. E. Gage, R. Li, H. Liu, L. Liang, I. Arslan, M. K. Y. Chan, S. B. King[§], Lattice anisotropy-driven reduction of phonon velocities in black phosphorus. *ACS Nano*, **19**, 4, 4324-4332 (2025)
3. P. Crossland, C.-Y. Lien, L. de Jong, J. L. Spellberg, M. Czaikowski, L. Wang. A. Filitov, S. B. King, J. S. Anderson, Processable Coordination Polymer Inks for Highly Conductive and Robust Coatings. *J. Am. Chem. Soc.*, **146**, 49, 33608-33615 (2024)
4. C. Raab, J. Rieger, A. Ghosh, J. L. Spellberg, S. B. King[§], Surface plasmons in two-dimensional MXenes, *J. Phys. Chem. Lett.* **15**, 11643–11656 (2024)
5. C. L. Keenan, A. Arcidiacono, N. Mirzajani, C. R. Johnston, S. B. King[§], Ultrafast Spectral Signatures of Laser-Induced Chalcogen Vacancies in MoS₂, *J. Phys. Chem. C*, **128**, 17536-17542 (2024)
6. A. Arcidiacono[§], C. R. Johnston, C. L. Keenan, N. Mirzajani, A. Ghosh, A. S. Filatov, S. B. King[§], Functionalization of Monolayer MoS₂ with Layered Multimolecular Architectures, *ACS Appl. Opt. Mater.*, **2**, 2011-2018 (2024) *Editor's Choice*
7. A. Ghosh, J. L. Spellberg, S. B. King[§], Polarization-dependent photoemission electron microscopy: new ways to image domains in inorganic and molecular materials, *J. Chem. Phys.* **161**, 110901 (2024)
8. R. Li, G. Wildenberg, K. Boergens, Y. Yang, K. Weber, J. Rieber, A. Arcidiacono, R. Klie, N. Kasthuri, S. B. King[§], Contrast Mechanism of Osmium Staining in Electron Microscopy of Biological Tissues. *ChemBioChem*, e202400311 (2024)
9. J. L. Spellberg, L. Kodaimati, P. P. Joshi, N. Mirzajani, L. Liang, S. B. King[§], Electronic structure orientation as a map of in-plane antiferroelectricity in β' -In₂Se₃. *Sci. Adv.* **10**, eado2136 (2024).
10. B. Guzelturk, V. Kamysbayev, D. Wang, H. Hu, R. Li, S. B. King, A. H. Reid, M.-F. Lin, X. Wang, D. A. Walko, X. Zhang, A. Lindenberg, D. V. Talapin, Understanding and Controlling Photothermal Responses in MXenes. *Nano Lett.* **23**, 2677–2686 (2023).
11. S. B. King, Quantum friction with water effectively cools graphene electrons. *Nat. Nanotechnol.* **18**, 842–843 (2023).
12. A. Demling, S. B. King[§], P. Shushkov, J. Stähler[§], O₂ Reduction at a DMSO/Cu(111) Model Battery Interface. *J. Phys. Chem. C* **127**, 2894–2900 (2023).
13. N. Mirzajani*, C. L. Keenan*, S. R. Melton, S. B. King[§], Accurate phase detection in time-domain heterodyne SFG spectroscopy. *Opt. Express* **30**, 39162 (2022).
14. P. P. Joshi*, R. Li*, J. L. Spellberg, L. Liang, S. B. King[§], Nanoimaging of the Edge-Dependent Optical Polarization Anisotropy of Black Phosphorus. *Nano Lett* **22**, 3180–3186 (2022).

Prior to UChicago

1. S. B. King, K. Broch, A. Demling, J. Stähler, Multistep and multiscale electron transfer and localization dynamics at a model electrolyte/metal interface. *J Chem Phys* **150**, 041702 (2019).
2. S. B. King, D. Wegkamp, C. Richter, M. Wolf, J. Stähler, Trapped Electrons at the Amorphous Solid Water/Vacuum Interface as Possible Reactants in a Water Splitting Reaction. *J Phys Chem C* **121**, 7379-7386 (2017).
3. A. B. Stephansen, S. B. King, Y. Yokoi, Y. Minoshima, W.-L. Li, A. Kunin, T. Takayanagi, D. M. Neumark, Dynamics of dipole- and valence bound anions in iodide-adenine binary complexes: A time-resolved photoelectron imaging and quantum mechanical investigation. *J Chem Phys* **143**, 104308 (2015).
4. S. B. King, A. B. Stephansen, Y. Yokoi, M. A. Yandell, A. Kunin, T. Takayanagi, D. M. Neumark, Electron accommodation dynamics in the DNA base thymine. *J Chem Phys* **143**, 024312 (2015).
5. S. B. King, M. A. Yandell, A. B. Stephansen, D. M. Neumark, Time-resolved radiation chemistry: Dynamics of electron attachment to uracil following UV excitation of iodide-uracil complexes. *J Chem Phys* **141**, 224310 (2014).

6. M. A. Yandell, S. B. King, D. M. Neumark, Decay dynamics of nascent acetonitrile and nitromethane dipole-bound anions produced by intracluster charge-transfer. *J Chem Phys* **140**, 184317 (2014).
7. M. A. Yandell, S. B. King, D. M. Neumark, Time-Resolved Radiation Chemistry: Photoelectron Imaging of Transient Negative Ions of Nucleobases. *J Am Chem Soc* **135**, 2128–2131 (2013).
8. M. A. Yandell, R. M. Young, S. B. King, D. M. Neumark, Effects of Excitation Energy on the Autodetachment Lifetimes of Small Iodide-Doped ROH Clusters ($R = H-, CH_3-, CH_3CH_2-$). *J. Phys. Chem. A* **116**, 2750–2757 (2012).
9. R. M. Young, M. A. Yandell, S. B. King, D. M. Neumark, Thermal effects on energetics and dynamics in water cluster anions $(H_2O)_n^-$. *J Chem Phys* **136**, 094304 (2012).
10. R. M. Young, R. J. Azar, M. A. Yandell, S. B. King, M. Head-Gordon, D. M. Neumark, Iodide solvation in tetrahydrofuran clusters: $I-(THF)_n$ ($1 \leq n \leq 30$). *Mol. Phys.* **110**, 1787–1799 (2012).
11. E. L. Dane, S. B. King, T. M. Swager, Conjugated Polymers That Respond to Oxidation with Increased Emission. *J Am Chem Soc* **132**, 7758–7768 (2010).

Teaching Experience

Pedagogy Teaching Fellow, Chicago Center for Teaching and Learning, Academic Year 2023-2024

Honors General Chemistry II, Winter Quarters 2020-2024

Wave Mechanics and Spectroscopy, Autumn 2022

Statistical Thermodynamics, Autumn 2018 & 2019

Professional Service

Executive Committee, Division of Chemical Physics, American Physical Society 2024-2027

Japanese-American-German Kavli Frontiers of Science Organizing Committee 2023-2025

Japanese-American-German Frontiers of Science, US Co-Chair 2024-2025

Co-organized symposium on “Chemistry of 2D Materials”, ACS National Meeting, San Francisco, CA Aug. 2023

The Journal of Chemical Physics Early Career Editorial Advisory Board 2023-2025

Co-Founder of “South Side Science Festival” and member of organizing committee 2022-2024

Co-organized symposium on “Multiscale Chemistry and Dynamics at Surfaces and Interfaces”, ACS National Meeting, San Diego, CA March 2022

Peer reviewer for: Proceedings of the National Academy of Sciences, Journal of Chemical Physics, Journal of Physical Chemistry C, Nature Communications Physics, Physical Chemistry Chemical Physics, Journal of Physical Chemistry Letters, Nano Letters.

Reviewer for: National Science Foundation (panel and adhoc), Department of Energy (Basic Energy Sciences), Air Force Office of Scientific Research, Research Corporation for the Advancement of Science

Professional Affiliations

American Chemical Society

American Physical Society

American Vacuum Society

Selected Invited Talks (Since Appt. to UChicago)

1. Imaging phonon dynamics and surface plasmon polaritons on the nanoscale, Gordon Research Conference on Molecular Interactions and Dynamics, July 2024 *Invited Keynote Talk*

2. Electronic structure and phonon dynamics on the nanoscale, Physical and Theoretical Chemistry Seminar, California Institute of Technology, May 2024
3. Electronic structure and phonon dynamics on the nanoscale, Chemistry Seminar, Princeton University, April 2024
4. Electronic structure and phonon dynamics on the nanoscale, Physical and Theoretical Chemistry Seminar, Purdue University, March 2024
5. Electronic structure and phonon dynamics on the nanoscale, Physical and Theoretical Chemistry Seminar, University of Southern California, November 2023
6. Nanoscale imaging of biological materials with photoemission electron microscopy, American Chemical Society National Meeting, San Francisco, CA, August 2023
7. Electronic structure and phonon dynamics on the nanoscale, Oak Ridge National Laboratory, Center for Nanoscale Materials Sciences User Meeting, Knoxville, TN, August 2023
8. Electronic structure and phonon dynamics on the nanoscale, Dynamics at Surfaces Gordon Research Conference, Salve Regina, July 2023
9. Watching Electrons and Phonons on the Nanoscale: Adventures in Ultrafast Electron and Phonon Microscopy, Colby College, Chemistry Seminar, Waterville, ME, Nov 2022
10. Watching Electrons and Phonons on the Nanoscale: Adventures in Ultrafast Electron and Phonon Microscopy, SUNY Stonybrook, Condensed Matter Physics Seminar, Stonybrook, NY, Oct 2022
11. Watching Electrons and Phonons on the Nanoscale: Adventures in Ultrafast Electron and Phonon Microscopy, Lawrence Berkeley National Laboratory, Molecular Foundry, Berkeley, CA, September 2022
12. Nanoimaging the anisotropic absorption and coherent phonon dynamics of few-layer black phosphorus, Ultrafast Surface Dynamics, Benasque, Spain, May 2022
13. Nanoscale variation in polarized light absorption and phonon dynamics of black phosphorus, American Chemical Society National Meeting, San Diego, March 2022
14. Nanoscale variation in polarized light absorption of black phosphorus, American Chemical Society National Meeting, Virtual, March 2021
15. Nanoscale imaging of rotational domains and electronic structure in black phosphorus. University of Maryland, College Park, Department of Chemistry, February 2021
16. Tracing from femtoseconds to seconds the dynamics of electronic states at a model electrode/electrolyte interface. American Chemical Society National Meeting, San Diego, August 2019
17. Probing the broken places in materials with ultrafast spectroscopy and microscopy. Wintergreen Meeting of Physical Chemistry, June 2019
18. Tracing the dynamics of interfacial electronic states from femtoseconds to seconds. DIET 2019. Garmisch-Partenkirchen, Germany, October 2018