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Engineering & Scientific Consulting

Shannon Haley, Ph.D.

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Professional Profile

Dr. Shannon Haley applies her experience with analyzing diverse datasets to engage in complex investigations and distill large amounts of information into clear and concise data stories. Working on smart card security, multi-facility production lines, cutting-edge information storage platforms, and datasets of all kinds, Shannon has developed skills in areas including data cleaning and analysis, statistics, dashboard building, side channel analysis, fault injection, and digital image processing.

Shannon received her PhD in physics from UC Berkeley, where she studied frustrated magnetism and other platforms for next-generation memory storage. Through the collection, analysis, and synthesis of data from a number of standard and non-standard measurement techniques, she revealed details of the magnetic order which fundamentally altered our understanding of these systems' capabilities.

While completing her thesis work, Shannon consulted for an early-stage tech startup, finding and analyzing consumer behavior datasets and generating geospatial data visualizations in order to inform their go-to-market strategy. Prior to her thesis work, her projects ranged from simulating magnetic shielding for a dark matter detector array, to developing a machine learning analysis pipeline for mouse neuron datasets, to using digital image analysis to better understand the immune system and how cells age.

Academic Credentials & Professional Honors

Ph.D., Physics, University of California, Berkeley, 2022

M.A., Physics, University of California, Berkeley, 2020

B.A., Physics, New York University, 2017

Lars Commins Memorial Award in Experimental Physics (2022)

Heising-Simons Physics Fellowship (2020)

Outstanding Graduate Student Instructor (2019)

Academic Appointments

Graduate Student Researcher, Department of Physics, University of California, Berkeley, 2019-2022

Graduate Student Instructor, Department of Physics, University of California, Berkeley, 2017-2019

Professional Affiliations

American Physical Society

Publications

Haley, Shannon C. et al. Long-range, non-local switching of spin textures in a frustrated antiferromagnet. Nature Communications 14, 4691 (2023).

Haley, Shannon C. et al. Half-magnetization plateau and the origin of threefold symmetry breaking in an electrically switchable triangular antiferromagnet. Physical Review Research (2020).

Maniv, Eran, Ryan A. Murphy, Shannon C. Haley, et al. Exchange bias due to coupling between coexisting antiferromagnetic and spin-glass orders. Nature Physics (2021).

Wu, Shan, Zhijun Xu, Shannon C. Haley, et al. Highly Tunable Magnetic Phases in Transition-Metal Dichalcogenide Fe_{1/3+\delta}NbS_2. Physical Review X (2022).

Caragine, Christina, Shannon C. Haley, Alexandra Zidovksa. Surface fluctuations and coalescence of nucleolar droplets in the human cell nucleus. Physical Review Letters (2018).

For a complete listing of publications, see Shannon C. Haley – Google Scholar

Presentations

Haley, Shannon et al. Manipulation and Study of Antiferromagnetic Order Enabled by Focused Ion Beam Fabrication. Invited talk, European FIB Network Workshop, Hamburg, Germany, 2022.

Haley, Shannon et al. Measurement of a ½ magnetization plateau in a frustrated antiferromagnet. APS March Meeting, virtual. 2020.