

Peyton D. Murray



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Computing	Python (proficient), C++ (intermediate), Go (intermediate), Bash (intermediate), CUDA (intermediate), Git (proficient), SQL (basic)	
Skills	Simulation, Time Series, Linux, Data Analysis, Statistics, Data Visualizations, Python Data Ecosystem (numpy, scipy, matplotlib, pandas, dask, ...), HPC, Distributed Computing, VTK.	
Education	University of California, Davis Ph. D. Physics: Dec 2018 M. S. Physics: Dec 2013	2012 – 2018
	Saint Mary's College of California, Moraga B. S. Physics, <i>summa cum laude</i>	2007 – 2011
Research & Experience	Computational Physics Laboratory Tampere University <i>Postdoctoral Researcher</i> Advisor: Lasse Laurson	Jan 2019 – Present
	<ul style="list-style-type: none">Carried out simulations of nanoscale magnetic materials using a combination of open source software and in-house code (Go, CUDA, and Python).Leveraged GPUs deployed as part of the CSC's Taito-GPU supercluster.	
	Department of Physics University of California, Davis <i>Graduate Student Researcher</i> Advisor: Kai Liu	2012 – 2018
	<ul style="list-style-type: none">Developed open source tools for analyzing and visualizing magnetic measurements using the First-Order Reversal-Curves (FORC) technique (Python).	
	Physics Division Lawrence Berkeley National Laboratory <i>Junior Specialist, ATLAS Experiment</i> Principal Investigator: Maurice Garcia-Sciveres	2011 – 2012
	<ul style="list-style-type: none">Tested next-generation hardware developed for tracking the trajectories of charged particles at the Large Hadron Collider (LHC), the largest particle physics experiment in the world.Developed system control GUI and backend for an integrated circuit tester (C++ and Qt). These tools allowed for automated testing of hundreds of chips (entire wafers) at a time, greatly increasing throughput.These chips were installed as part of the Insertable B-Layer system at the Large Hadron Collider in 2014[1].	
	Physics Department Saint Mary's College of California, Moraga <i>Research Assistant, ALFALFA Collaboration</i> Advisor: Ron Olowin	2010 – 2011
	<ul style="list-style-type: none">International collaboration conducting galactic and extragalactic radio astronomy observations	

Teaching	Teaching Assistant	2012 – 2016
	Department of Physics, University of California, Davis	
	Student Tutor and Live-In Mentor	2010 – 2011
	Physics Department, Saint Mary's College of California, Moraga	

Publications

1. Collaboration, T. A. I. Prototype ATLAS IBL modules using the FE-I4A front-end readout chip. *Journal of Instrumentation* **7**, P11010–P11010. ISSN: 1748-0221. <http://stacks.iop.org/1748-0221/7/i=11/a=P11010?key=crossref.1607afc402756d2e7218f7327961358c> (2012).
2. Murray, P. D. *et al.* Interfacial-Redox-Induced Tuning of Superconductivity in $\text{YBa}_2\text{Cu}_3\text{O}_{7-\delta}$. *In review*.
3. Murray, P. D., Zhang, J., Zhang, X. & Liu, K. Electrically Tunable Exchange Bias. *In preparation*.
4. Gilbert, D. A. *et al.* Building Bridges from FORC to Phase-Resolved Major Loops. *In preparation*.
5. Skaugen, A., Murray, P. D. & Laurson, L. Analytical computation of the demagnetizing energy of thin film domain walls. **2**, 1–11. arXiv: [1906.07475](https://arxiv.org/abs/1906.07475) (2019).
6. Karayev, S. *et al.* Interlayer exchange coupling in Pt/Co/Ru and Pt/Co/Ir superlattices. *Physical Review Materials* **3**, 041401. ISSN: 2475-9953 (2019).
7. Quintana, A. *et al.* Voltage-Controlled ON–OFF Ferromagnetism at Room Temperature in a Single Metal Oxide Film. *ACS Nano* **12**, 10291–10300. ISSN: 1936-0851 (2018).
8. Gilbert, D. A. *et al.* Ionic tuning of cobaltites at the nanoscale. *Physical Review Materials* **2**, 104402. ISSN: 2475-9953 (2018).
9. De Toro, J. A. *et al.* Remanence plots as a probe of spin disorder in magnetic nanoparticles. *Chemistry of Materials* **29**, 8258–8268. ISSN: 15205002 (2017).
10. Sun, L. *et al.* Magnetization reversal in kagome artificial spin ice studied by first-order reversal curves. *Physical Review B* **96**, 144409. ISSN: 24699969. arXiv: [1709.05656](https://arxiv.org/abs/1709.05656) (2017).
11. Zhang, Q. *et al.* Magnetic fingerprint of interfacial coupling between CoFe and nanoscale ferroelectric domain walls. *Applied Physics Letters* **109**, 082906. ISSN: 00036951 (2016).