Curriculum Vitae of John Bonini

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https://github.com/jrbp

RESEARCH INTERESTS

Application and development of computational and data-driven techniques to facilitate the discovery and understanding of functional materials, including ferroelectrics, piezoelectrics, topological insulators and semimetals as bulk, thin films, and heterostructures.

EDUCATION

2013-	**PhD. in Physics** (expected 2020) Rutgers University, Condensed Matter Theory Advisor: Karin Rabe
2009-2013	**B.S. in Physics** Rowan University, Minor in Mathematics, Minor in Computer Science

ARTICLES

2019	"Discretized diagonalization for efficient Berry curvature integration: Application to electric polarization" J. Bonini, D. Vanderbilt, and K. M. Rabe To be submitted to arXiv by the end of 2019
2019	"First-principles bulk-layer model for dielectric and piezoelectric responses in superlattices" J. Bonini, J. W. Bennett, P. Chandra, and K. M. Rabe *Phys. Rev. B 99, 104107*
2011	"Enhanced resonant magnetoelectric coupling in frequency-tunable composite multiferroic bimorph structures" P. Finkel, J. Bonini, E. Garrity, K. Bussman, J. Gao, J. F. Li, S. E. Lofland, and D. Viehland *Appl. Phys. Lett. 98, 092905*

TALKS

2019	"Fantastic metastable states and where to find them: A computational search for superlattices with enhanced functional properties" *APS March Meeting, Boston, Massechusetts*
	"First principles dielectric slab model for dielectric and piezoelectric response in superlattices" *Symposium of the Laboratory for Surface Modification, Rutgers University*

"First principles dielectric slab model for dielectric and piezoelectric response in superlattices"
Fundamental Physics of Ferroelectrics, Tampa, Florida

2018   "First principles dielectric slab model for dielectric and piezoelectric response in superlattices"
APS March Meeting, Los Angeles, California

2017   "Efficient computation of spontaneous polarization using Wannier center displacements"
APS March Meeting, New Orleans, Louisiana

2016   "Efficient computation of spontaneous polarization using Wannier center displacements"
Fundamental Physics of Ferroelectrics, Washington D.C.

2015   "High throughput density functional theory calculations for predicting new ferroelectrics"
Student Seminars in Physics and Astronomy, Rutgers University

SCHOOLS/WORKSHOPS ATTENDED

2019   Workshop on Recent Developments in Electronic Structure
University of Illinois at Urbana-Champaign
Poster: "Computing spontaneous polarization without sampling a switching path"

2018   NSF EFRI-2DARE, DMRED-2D & MIP Grantees Meeting
Pennsylvania State University Materials Research Institute

2017   International School on Oxide Electronics
Institut d'Études Scientifiques Cargèse, France
Poster: "Efficient computation of spontaneous polarization using Wannier center displacements"

Workshop on Recent Developments in Electronic Structure
Princeton University

2015   Machine Learning for Materials Science Workshop
University of Maryland

2014   Quantum Espresso Workshop
Pennsylvania State University

2013   NJSGC Annual Summer Research Conference
Rutgers University
Poster: "Engineering the interaction between cold dipolar molecules with external fields to produce novel quantum phases"

2012   NJSGC Academic Year Fellowship Poster Session
Rutgers University
Poster: "Design of a system for Elastic, Electric, and Magnetic Properties of Multiferroic Devices "

STEM Symposium
Rowan University
Poster: "Design of a system for Elastic, Electric, and Magnetic Properties of Multi-ferroic Devices "

Awards

2019   **Best Oral Presentation by student or postdoc (3rd Place)**
Fundamental Physics of Ferroelectrics Workshop

2013   **Excellence Fellowship**
Rutgers University

Medallion for Excellence in Physics
Rowan University

Computer Skills

Python, HPC, Linux, MongoDB, Git, Bash, Fortran, Lisp, C

References

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Cyrus Dryer
Assistant Professor
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