Zhong Li

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EDUCATION

- **Ph.D. in Physics, The University of Alabama,** Tuscaloosa, USA 2013 - 2019
  Dissertation topic: "The Spin Seebeck Effect in Magnetic Insulating Oxides"
  Advisors: Dr. Arunava Gupta & Dr. Gary J. Mankey
- **B.S. in Physics, Central China Normal University,** Wuhan, China 2008 - 2012

RESEARCH EXPERIENCE

Department of Physics, The Ohio State University 2020 - Present
Postdoctoral Researcher *Columbus, OH*

· **Terahertz Spintronics with Antiferromagnetic Insulators.** This project will focus on the growth of epitaxial magnetic films and heterostructures using off-axis sputtering, patterning of micro/nano-scale structures, characterization of their structural, electrical, magnetic, and spin transport properties, and investigation of high frequency dynamics and switching of antiferromagnet insulator based structures.

Center for Materials for Information Technology 2014 - 2019
Graduate Research Assistant *Tuscaloosa, AL*

· Proposed research plans, including literature review and summary, experimental design and implementation

· Managed the lab of the research group, including maintenance and replacement of PLD system, purchasing consumables and training other group members

· Achieved higher quality thin films (e.g. $NiFe_2O_4$) using PLD technique by consecutively optimizing deposition parameters, such as temperature, pressure, laser shot energy and time, lattice mismatch, etc.

· Completed multiple characterizations on thin films with multiple techniques, such as XRD and SEM for thickness, AFM and SEM for surface condition, VSM and FMR for magnetic properties, etc.

· Advanced the understanding the fundamental physics principles of affecting thin film's magnetic properties based on massive data analysis of dozens of samples

· Developed a new alternative vectorial magnetometry for studying magnetization reversal on thin films using the voltage signals of the spin Seebeck effect measurement from two perpendicular directions

TEACHING EXPERIENCE

Department of Physics & Astronomy 2013 - 2019
Graduate Teaching Assistant *Tuscaloosa, AL*

· Conducted introductory physics lab courses and helped students grasp basic physics concepts effectively, designed quizzes, led lab experiments, and answered students' questions during weekly office hours

· Designed quizzes for undergraduates, designed and directed lab experiments
· Gave students guidance in studying physics during office hour

PROJECTS

Built a Laser Positioning LabVIEW Program for Pulsed Laser Deposition 2015
Project Leader *Tuscaloosa, AL*

· Proposed comprehensive plans, including literature review, discussion with group members, assessment of the technical and economic feasibility
· Implemented and customized the basic driver modules' code for the motor devices from the company, and integrated modified codes to the new designed LabVIEW program
· Debugged and improved consecutively the LabVIEW program by conducting model and experiment cross-talk testing of laser shot on one-inch diameter target
· Summarized all functions of the program and future possible improvements

Built a Temperature Control PID LabVIEW Program for Spin Seebeck Effect 2019
Project Leader *Tuscaloosa, AL*

· Proposed comprehensive plans, discussed with group members, purchased related devices
· Implemented and customized the basic driver modules' code for thermocouple devices from NI company, and integrated modified codes to the new designed LabVIEW program
· Debugged the LabVIEW program and tuned PID parameters for temperature feedback control by manual adjustment and auto tune program (temperature fluctuation < 0.5 °C)

HONORS / AWARDS

· Outstanding Poster Award in Center for Materials for Information Technology, UA (#1 out of 40) 2017
· Robert E. Gross Lockheed Fellowship in Physics, UA 2014
· Excellent Student Award, CCNU 2009, 2010, 2011

CONFERENCES / TALKS / POSTERS

· "*Vectorial Observation of Spin Seebeck Effect in $NiFe_2O_4$ Thin Films of Different Crystal Orientations*"
MINT Fall Review and Workshop, Tuscaloosa, AL 2018
· "*Vectorial Observation of Spin Seebeck Effect in $NiFe_2O_4$ Thin Films*"
InterMAG Conference, Singapore 2018
· "*Vectorial Observation of Spin Seebeck Effect in $NiFe_2O_4$ Thin Films*"
MINT Fall Review and Workshop, Tuscaloosa, AL 2017
· "*Enhanced Magnetic Properties and Spin Seebeck Effect in Epitaxial Nickel Ferrite Thin Films Grown on Lattice-Matched Substrates*"
Conference on Magnetism and Magnetic Materials, New Orleans, LA 2016
· "*Structural Characterization and Magnetic Properties of Epitaxial Ce-YIG Thin Films*"
MINT Fall Review and Workshop, Tuscaloosa, AL 2016

· "*A Hybrid Deposition System for Materials Science Research*"
MINT Fall Review and Workshop, Tuscaloosa, AL 2015

· "*Enhanced Magneto-optic Kerr Effect and FMR of Ce-YIG Thin Films*"
MINT Fall Review and Workshop, Tuscaloosa, AL 2015

· "*A Hybrid Pulsed Laser Deposition / Chemical Vapor Deposition System for Nanostructure Fabrication*"
MINT Fall Review and Workshop, Tuscaloosa, AL 2014

PUBLICATIONS

· **Z. Li**, J. Krieft, A. V. Singh, S. Regmi, A. Rastogi, A. Srivastava, Z. Galazka, T. Mewes, A. Gupta, T. Kuschel, **Appl. Phys. Lett. 114**, 232404 (2019), *Vectorial Observation of the Spin Seebeck Effect in $NiFe_2O_4$ Thin Films of Different Crystal Orientations.*

· A. Rastogi, **Z. Li**, A. V. Singh, S. Regmi, T. Peters, P. Bougiatioti, D. Carsten né Meier, J. B. Mohammadi, B. Khodadadi, T. Mewes, R. Mishra, J. Gazquez, A. Y. Borisevich, Z. Galazka, R. Uecker, G. Reiss, T. Kuschel, A. Gupta, **Phys. Rev. Appl.** (Submitted in 2019), *Enhancement in Thermally Generated Spin Voltage at Nickel Ferrite/Pd Interface.*

· S. Regmi, **Z. Li**, A. Srivastava, R. Mahat, S. KC, A. Rastogi, T. Mewes, A. Gupta, **Appl. Phys. Lett.** (To be submitted in 2019), *Structural Characterization, Magnetic Properties, and Spin Transport in Nickel Ferrite Thin Film Grown on Lattice Matched Substrates.*

· P. Zhou, A. V. Singh, **Z. Li**, M. A. Popov, Y. Liu, D. A. Filippov, T. Zhang, W. Zhang, P. J. Shah, B. M. Howe, M. E. McConney, G. Srinivasan, M. R. Page, and A. Gupta, **Phys. Rev. Appl. 11**, 054045 (2019), *Magnetoelectric Interactions in Composites of Ferrite Films on Lattice-Matched Substrates and Ferroelectrics.*

· **Z. Li**, A. V. Singh, A. Rastogi, J. Gazquez, A. Y. Borisevich, R. Mishra, A. Gupta, **Mater. Res. Express 4**, 076101 (2017), *High-resolution structural characterization and magnetic properties of epitaxial Ce-doped yttrium iron garnet thin films.*

★ Edited by Z. LI, March 4, 2020