PRAVINI S. FERNANDO

Full Name: Muthunama Gonnage Pravini Samiddika Fernando
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EDUCATION

State University of New York at Binghamton, USA *August 2017 - Present*
PhD in Physics GPA: 4.00/4.00
Harpur college first year award

University of Colombo, Sri Lanka *January 2013 - January 2017*
Bachelor of Science, Specialization in Physics. GPA: 3.93/4.00
Ranked First in the Science Faculty
Recipient of Multiple Gold Medal Prizes for Physics (2017)

RESEARCH

Nanoscale Characterization (i.e., using SPM techniques, TEM and GIXD), Exploring Structure - Electronic Function Relationships, Surface Characterization, Organic and perovskite Photovoltaics

RESEARCH AND RELATED EXPERIENCE

State University of New York at Binghamton, USA August 2018 - Present
Research done in fulfillment of PhD

· My research is aimed at nanoscale characterization of organic solar cell ativelayers. I use combined microscopy techniques (C-AFM, TEM, GIXD) to elucidate the structural origins of electronic and photovoltaic properties in semiconducting polymers and small molecule thin films.

National Renewable Energy Laboratory (NREL), Golden, Colorado, USA Summer 2020
Hands on Photovoltaic Experience (HOPE program)

· Selected to participate in the HOPE workshop. The HOPE Workshop is designed to strengthen photovoltaic (PV) research at universities in the United States. Hands on experience on solar cell fabrication and PV-related characterization techniques.

University of Colombo, Sri Lanka January 2016 - January 2017
Research done in fulfillment of Bachelors Degree

· Simulated non-linear optical properties of photonic crystals using MATLAB.

TECHNICAL STRENGTHS

Experimental Skills	Fabrication of Organic and Perovskite solar cells, Conductive Atomic Force Microscopy (C-AFM) techniques,Kelvin Probe Force Microscopy (KPFM), Piezoresponse Force Microscopy (PFM),Point-by-point Current-Voltage Mapping (PPIV), X-ray Diffraction (XRD),Grazing Incidence X-ray Diffraction (GIXD), Thermal Evaporation, Clean room Experience
Coding Skills and Platforms	Matlab, Python, ImageJ

SELECTED PUBLICATIONS

1. *"Mixed molecular orientations promote charge transport in bulk heterojunction solar cells "*. By **Pravini S. Fernando**, Detlef-M. Smilgies, and Jeffrey M. Mativetsky. In: Chemical Communications 2022,58, 5765-5768.
2. *"Probing the Contribution of Lateral Pathways to Out-of-Plane Charge Transport in Organic Bulk Heterojunctions "*. By **Pravini S. Fernando**, Jeremy S. Mehta, Detlef-M. Smilgies, and Jeffrey M. Mativetsky. In: Advanced Electronic Materials 2022, 2200156.
3. *"Freeing Organic Semiconductor Nanowires from Nanoporous Aluminum Oxide Templates: Effects on Morphology, Crystal Structure, and Molecular Aggregation"*. By Alexander M. Haruk, **Pravini S. Fernando**, Detlef-M. Smilgies, Jeffrey M. Mativetsky. In: Crystal Growth Design 2021,21(2), 721-728.
4. *"Tuning Organic Semiconductor Alignment and Aggregation via Nanoconfinement"*. By Alexander M. Haruk, Collen Z. Leng, **Pravini S. Fernando**, Detlef-M. Smilgies,Yueh-Lin Loo, Jeffrey M. Mativetsky. In: The Journal of Physical Chemistry C 2020, 124(41), 22799-22807.
5. *"Colocalized Nanoscale Electrical and Compositional Mapping of Organic Solar Cells"*. By Jeremy S. Mehta, **Pravini S. Fernando**, John L. Grazul, Jeffrey M. Mativetsky. In: ACS Appl. Energy Mater. 2019, 2, 51465153.
6. *"Nonlinear optical properties of photonic crystals"*. By **Pravini S. Fernando** K.A.I.L. Wijewardena Gamalath. In: World Scientific News, volume 97, 1-27 (2018)
7. *""Modelling All-Optical Switching and Limiting Properties of AlAs Photonic Crystals"*.**Pravini S. Fernando** K.A.I.L. Wijewardena Gamalath. In: International Letters to Chemistry Physics and Astronomy, volume 77, 1-14 (2018)
8. *"Simulating all optical switching based on 2-D nonlinear GaAs photonic crystals with side coupled microcavities"*. **Pravini S. Fernando** K.A.I.L. Wijewardena Gamalath. In: 2017 International Conference on Computational Modeling Simulation (ICCMS-2017).

AWARDS AND SCHOLARSHIPS

1. Selected to participate in the Hands-on Photovoltaic Experience (HOPE) held by National Renewable Energy Laboratory (NREL) Golden, Colorado, USA (2020).
2. Winner of Harpur First Year Graduate Award, State University of New York at Binghamton. (2017)
3. Winner of Joseph Nalliah Arumugum memorial prize for the Highest Academic Competence in Faculty of Science, University of Colombo, Sri Lanka. (2017).
4. Winner of Gulamhusein A.J. Noorbhai prize for the best Physics undergraduate Research project, University of Colombo, Sri Lanka (2017).
5. Winner of Dr. C. A. Hewawitharana memorial prize for Physics, University of Colombo, Sri Lanka (2017).
6. Winner of Mailvaganam memorial prize for Physics, University of Colombo, Sri Lanka (2017).

TEACHING EXPERIENCE

State University of New York at Binghamton, USA August 2017 - December 2019
Graduate Teaching Assistant, Department of Physics, Applied Physics and Astronomy
- *Planned and lead 6+ hours of discussion-based instruction per week by expanding on course topics*
- *Developed course material and emphasized active learning techniques for students*

- *Supported students individually during weekly office hours to enhance understanding and learning*
- *Generate curriculum-relevant problem sets for discussion, review sessions, quizzes*

· PHYS 121 : General Physics I in Fall-2017, Fall-2020
· PHYS 131 : General Physics I (calculus based) in Spring 2018, Summer 2018, Spring 2019
· PHYS 332 : Electromagnetic Theory II in Fall 2018
· PHYS 496 : Physics Graduate Studies Prep in Fall 2018
· PHYS 132 : General Physics II (calculus based) in Fall-2019

University of Colombo, Sri Lanka January 2017 - August 2017
Assistant Lecturer, Department of Physics

· Teaching experience in Masters of Physics Education Lab
· Conducted tutorial sessions for PHYS 1001 - Modern Physics and PHYS - 2001 Analog and Digital Electronics I
· Teaching experience in Undergraduate Lab sessions (Electronics and Computing Lab 2, General Physics Lab 1)

PROFESSIONAL EXPERIENCE

State University of New York at Binghamton, USA January 2020 - present
Graduate Assistant : Research Experiences for Undergraduates (REU) in Renewable Energy Generation and Storage ,

· Organized 150+ applications for NSF funded research that prioritized underrepresented students
· Host workshops and seminars on renewable energy generation and storage research
· Worked closely with the faculty and administrative staff to successfully manage the program
· Mentored 6 students in research methods and communication