Shaun McAnally

Curriculum Vitae

+61 0434 706 818
s.mcanally@uq.edu.au

Educational Qualifications

Bachelor of Advanced Science (Honours I)
Physics Major
February 2018 – February 2022
UQ Excellence Scholar
School of Mathematics and Physics
The University of Queensland (Brisbane, Queensland)

Professional Experience

Program Leader

February 2019 – February 2022
Student Led Observations for Course Improvement (SLOCI)
Faculty of Science
The University of Queensland (Brisbane, Queensland)
SLOCI is a student-run research unit in the Faculty of Science that partners with course coordinators to provide them with insights on the experience of students in their course throughout the semester. Appointed as Team Leader, I coordinated the course partnerships (approximately 12 per semester) and our team (15 undergraduate students) to produce research reports based on the class observations, surveys and focus groups we perform during the semester. In my role I was responsible for selecting team members, making initial contact with course coordinators, providing training and ongoing support to our team members, managing our project leaders and reviewing all reporting work before it was shared with course coordinators. My primary contributions beyond everyday duties were the design and implementation of a complete suite of resources to standardise and streamline our course partnership methodology along with the introduction of a consistent leadership structure that encourages collaboration and the development of critical thinking skills. In early 2021, I was a finalist for the Faculty of Science *Future Superstars – Undergraduate* award for my work with SLOCI.

Board of Studies Committee Member

February 2020 – February 2022
Full Member - Undergraduate Student Representative
Faculty of Science, The University of Queensland

Teaching and Learning Committee Member

February 2018 – December 2018
Full Member - Undergraduate Student Representative
Faculty of Science, The University of Queensland

Research Experience

PhD Student

April 2022 – Current
Centre for Organic Photonics & Electronics
School of Chemistry and Molecular Biosciences, The University of Queensland

Research Assistant (Staff Role)
January 2022 – March 2022
Centre for Organic Photonics & Electronics
School of Chemistry and Molecular Biosciences, The University of Queensland

Honours Research Project
February 2021 – November 2021
More from Less: High performance low donor content organic photovoltaic devices
Centre for Organic Photonics & Electronics
School of Chemistry and Molecular Biosciences, The University of Queensland
In my honours research project, I fabricated and tested high-performance organic solar cells at the Centre for Organic Photonics & Electronics. The focus of this research project was two-fold. First, I demonstrated that it was possible to significantly reduce the content of donor material in the active layer of an organic solar cell while maintaining strong photovoltaic performance when coupled with a high-performance acceptor material. Secondly, I compared two class-leading non-fullerene acceptor materials, Y6 and ITIC-2F, and identified that the difference in device performance exhibited by these two structurally similar materials was a result of the lower charge transport efficiency of the latter.

Advanced Physics Research (PHYS3901)
Semester 2, 2020
Extending the light harvesting of organic solar cells towards the infrared with a non-fullerene acceptor
Supervisors: Professor Paul Burn and Dr Paul Shaw
Centre for Organic Photonics & Electronics
School of Chemistry and Molecular Biosciences, The University of Queensland
In this research project, I used novel materials synthesised at the Centre for Organic Photonics & Electronics to fabricate and test organic solar cells. Once I had received the requisite introduction to the fabrication and testing of organic optoelectronic devices using the facilities available at COPE, I was able to plan and conduct my own device fabrication work and analyse the subsequent solar cell device performance to characterise these novel organic semiconducting materials. During this project, I also learned how to conduct a selection of material and device characterisation methods including charge transport analysis, ellipsometry and atomic force microscopy.

Perspectives in Science Research (SCIE3011)
Semesters 1 and 2, 2019
Redshift effects in entangled quantum particles
Supervisor: Dr Magdalena Zych
School of Mathematics and Physics, The University of Queensland
In this research project, I was tasked with developing a model for the expected time evolution of an entangled quantum system under the influence of a spatially-variant gravitational field. This project required the application of the formalism of both quantum mechanics and general relativity to the challenge of understanding time evolution for entangled state systems. At the conclusion of this project, I was able to model the expected time evolution of the system using Mathematica with a selection of spatially-variant gravitational field intensities. As part of this project, I submitted a research poster to the Faculty of Science Undergraduate Research Conference and subsequently received the runner-up prize for best poster.

UQ Summer Research Program (with Scholarship)
November 2018 – February 2019
Magic wavelength Faraday imaging
Supervisor: Dr Mark Baker

School of Mathematics and Physics, The University of Queensland

In this research project, I collaborated with a fellow undergraduate student to create an optics system that was tuned to interact with an ultra-cold rubidium sample. I was responsible for selecting appropriate components, tuning the optics setup to achieve complete alignment and testing the complete system to ensure proper operation. By the conclusion of this project, we had successfully produced a tuneable laser optics system that was capable of operating in the desired wavelength range that would provide the required energy for excited-state transitions in the target sample.

Research Grants

- **ANFF-Q Student Award**
  *August 2020 - August 202*1
  Awarded by the Queensland branch of the Australian National Fabrication Facility
- **UQ Student-Staff Partnership Grants**
  2018 Semester 1, 2018 Semester 2 & 2019 Semester 1
  Awarded by The University of Queensland on three occasions for interdisciplinary research projects

Published Work

The Carbon Almanac (June 21, 2022)
Developmental & Copy Editor

Awards

UQ Faculty of Science *Partnership & Collaboration Award*
2021
For leading the Student Led Observations for Course Improvement Team in over sixty partnerships with Faculty of Science academics

Seminar Presentations

19th November, 2021 - School of Chemistry and Molecular Biosciences Symposium (Aus.)
More from Less: High performance low donor content organic photovoltaic devices
Awarded Best Presenter

Conferences

9th October, 2018 - Technosapiens
Symposium Chair
The University of Queensland, Aus.
Presenters: Dr Dimitri Perrin, Dr Lisa Dethridge, Professor Michael Milford and Professor Andrew Crowden

30th November - 2nd December, 2022
Poster Presentation
Asia-Pacific Solar Research Conference (APSRC)
Australian Centre for Advanced Photovoltaics (ACAP) Annual Meeting
Newcastle, Aus.

7th - 9th December, 2022
Poster Presentation
Australasian Community for Advanced Organic Semiconductors (AUCAOS) Symposium
Tweed Heads, Aus.