



PhD Scholarship Opportunity in Perovskite Solar Cells

A unique, exciting opportunity exists for gifted candidates interested in undertaking their PhD in the field of physical and/or materials chemistry at Monash University within the project funded through [Australian Renewable Energy Agency](#).

PhD project

A significant challenge posed by the electrodes of perovskite solar cells is the chemical compatibility and stability of the resulting device. To date, gold is most commonly used as the rear contact material. However, as well as being too expensive, gold has been found to diffuse into the perovskite layer, degrading the solar cells. Other metals have been explored to a limited extent, but the data with regards to long term stability is missing and inconclusive. The PhD project will focus on exploring a range of new promising materials as counter electrodes in perovskite solar cells based on the best formulations developed at Monash University and Australian National University, who is the partner investigator on this research programme. A special emphasis will be put on establishing the mechanisms and investigating kinetics of degradation of electrodes under the conditions of operating solar cell *via* a combination of electrochemical, electrical and optical techniques. The project will involve extensive testing beyond standard photovoltaic tests.

The project academic supervisors are Dr. Alexandr N. Simonov (School of Chemistry) and Prof. Udo Bach (Chemical Engineering Department).

The research team is looking for a candidate who is highly qualified (H1 Honours or Masters degree or equivalent) in Chemistry or a related subject.

Location

[Clayton campus, Monash University](#)

Remuneration

27 353 AUD per annum full-time rate (tax-free stipend for 3 years)

Note for International applicants: scholarship does not cover Monash University [international fees](#).

Candidate requirements

Successful applicants will have an excellent academic track record in chemistry or materials science.

An Honours or Masters degree with H1 or equivalent is essential.

A strong interest in physical chemistry at university level is essential as is a passion to work to improve outcomes for undergraduate students.

Excellent written and verbal communication skills

Ability to work independently as well as in a team

Ability to plan, organise and manage multiple tasks and meet deadlines

Evidence of data analysis and interpretation skills and experience with statistical analysis is desirable

Some experience or understanding of qualitative research would be an advantage

Candidates will be required to meet Monash entry requirements which include English-language skills

Scholarship holders must be enrolled full-time and on-campus.

Applications and further information

To submit an application, please email the following documents to Dr. Alexandr N. Simonov <alexandr.simonov@monash.edu> and Prof Udo Bach <udo.bach@monash.edu> as PDF attachments:

- Cover letter (one A4 page **maximum**)
- Curriculum Vitae (two A4 pages **maximum** + list of publications)
- Copy of academic transcripts (university level qualifications)
- IELTS test results if applicable (>6.0 score)