



# RESEARCH FELLOW – PHYSICAL CHEMISTRY AND NANOSCIENCE

DEPARTMENT/UNIT

School of Chemistry

Faculty of Science

Clayton campus

FACULTY/DIVISION

CLASSIFICATION

Level A

WORK LOCATION

# **ORGANISATIONAL CONTEXT**

Everyone needs a platform to launch a satisfying career. At Monash, we give you the space and support to take your career in all kinds of exciting new directions. You'll have access to quality research, infrastructure and learning facilities, opportunities to collaborate internationally, as well as the grants you'll need to publish your work. We're a university full of energetic and enthusiastic minds, driven to challenge what's expected, expand what we know, and learn from other inspiring, empowering thinkers. Discover more at <u>www.monash.edu</u>.

The **Faculty of Science** works through frontiers via our research, teaching and our partnerships with industry, government and individual supporters. Our five Schools offer a large and diverse range of disciplines in undergraduate and postgraduate courses. Ten Schools from other university faculties contribute to science teaching at all levels, allowing students to choose their studies from physical, biological, biomedical, behavioural, environmental, mathematical and computer sciences. In terms of research, our respected researchers are at the top of their game. Their work spans the theoretical to the applied, contributes to new knowledge and technologies, and challenges how we interact with the world. To learn more about the Faculty of Science, please visit our website: <u>www.monash.edu/science/</u>.

The **School of Chemistry** is located in the Faculty of Science and is one of the leading Chemistry Schools in Australia (as per national benchmarking statistics) with an international reputation for its quality research programs and postgraduate training. The School has within it a node of the ARC Centre of Excellence in Exciton Science and the ARC Centre of Excellence in Electromaterials Science and members associated with two Cooperative Research Centres. The objectives of the School are to undertake and publish high quality research, promote industry and government engagement and to provide internationally recognized programs in Chemistry for undergraduate and postgraduate students. Research in the School of Chemistry at Monash University has an established strength in the area of physical chemistry and nanoscience. Dr Funston's laboratory includes a fully equipped synthetic laboratory for the synthesis and assembly of colloidal nanocrystals, as well as an optical spectroscopy laboratory. The latter houses specialised instrumentation for the determination of the optical properties of colloidal nanocrystals, single nanocrystals and assemblies of nanocrystals as a function of both time and space.

# **POSITION PURPOSE**

This position will conduct high-quality research in the area of physical chemistry and nanoscience, with an emphasis on spectroscopy, synthesis and assembly of nanostructures. The incumbent will be based in Chemistry and join a multidisciplinary research team, with strong interactions with other research groups and institutions working under the ARC Centre of Excellence in Exciton Science (ACEx). ACEx seeks to understand how photons interact with advanced materials in order to improve the way we harness and use light energy. This Level A research-only position focuses on the synthesis/fabrication and investigation of well-defined hybrid nanoparticle superstructures and using advanced microscopy and spectroscopy to determine their optical response. Key outcomes of the Level A research-only position will be intellectual property and scientific publications. Other responsibilities include maintenance of laboratory equipment.

**Reporting Line:** The position reports to an Academic with the School of Chemistry, Faculty of Science, and work will be undertaken with a high degree of autonomy under broad supervision

Supervisory Responsibilities: Not applicable

Financial Delegation: Not applicable

Budget Responsibilities: Not applicable

## **KEY RESPONSIBILITIES**

Specific duties required of a Level A research-only academic may include:

- The conduct of research under limited supervision either as a member of a team or, where appropriate, independently and the production or contribution to the production of conference and seminar papers and publications from that research
- 2. Involvement in professional activities including, subject to availability of funds, attendance at conferences and seminars in the field of expertise
- 3. Limited administrative functions primarily connected with the area of research of the academic
- **4.** Development of a limited amount of research-related material for teaching or other purposes with appropriate guidance from other staff
- 5. Occasional contributions to teaching in relation to their research project(s)
- 6. Experimental design and operation of advanced laboratory and technical equipment or conduct of advanced research procedures
- 7. Attendance at meetings associated with research or the work of the organisational unit to which the research is connected and/or at departmental, school and/or faculty meetings and/or membership of a limited number of committees
- 8. Advice within the field of the staff member's research to postgraduate students

## **KEY SELECTION CRITERIA**

#### Education/Qualifications

- 1. The appointee will have:
  - A PhD qualification in Chemistry or a relevant area, from a recognised university

#### **Knowledge and Skills**

- 2. The ability to work as part of a multidisciplinary team
- 3. The ability to work independently in a research environment (with limited supervision)

- 4. Demonstrated ability to produce high quality research outcomes
- 5. The ability to prepare and communicate the aims and outputs of research projects in a range of formats including formal and informal oral presentations, refereed research papers and reports
- 6. Well-developed computer literacy
- **7.** Experience in two or more of the following fields:
  - a) Synthesis of semiconductor nanocrystals
  - b) Nanocrystal assembly or fabrication methods
  - c) Optical spectroscopy and single particle spectroscopy and microscopy
  - d) Spatially-resolved optical spectroscopy, including sub-diffraction techniques
  - e) Time-resolved optical spectroscopy (eg TCSPC, flash photolysis)
  - f) Modelling and theory of the optical response of metal nanoparticles
  - g) Optical characterisation of nanomaterials
  - h) Photoinduced charge and energy-transfer dynamics in solution and film

## **OTHER JOB RELATED INFORMATION**

- Travel to other campuses of the University and to other Universities within the ARC Centre of Excellence in Exciton Science may be required
- There may be a requirement to work additional hours from time to time
- There may be peak periods of work during which taking of leave may be restricted

# LEGAL COMPLIANCE

Ensure you are aware of and adhere to legislation and University policy relevant to the duties undertaken, including: Equal Employment Opportunity, supporting equity and fairness; Occupational Health and Safety, supporting a safe workplace; Conflict of Interest (including Conflict of Interest in Research); Paid Outside Work; Privacy; Research Conduct; and Staff/Student Relationships.