



POSITION DESCRIPTION

Position Title:	Nuclear Materials Chemist
Cluster / Business Unit / Division	Nuclear Science and Technology
Section or Unit:	Nuclear Fuel Cycle
Classification:	Band 6
Job Family:	Research
Position Description Number:	PD-1222
Work Contract Type:	Professional
STEMM/NON-STEMM:	STEMM

POSITION PURPOSE

The primary objective of the Nuclear Materials Chemist is to conduct strategic and operational research through design, synthesis and characterization of materials that will be utilized in the next generation nuclear fuel cycle.

ORGANISATIONAL ENVIRONMENT

ANSTO leverages great science to deliver big outcomes. We partner with scientists and engineers and apply new technologies to provide real-world benefits. Our work improves human health, saves lives, builds our industries and protects the environment. ANSTO is the home of Australia's most significant landmark and national infrastructure for research. Thousands of scientists from industry and academia benefit from gaining access to state-of-the-art instruments every year.

The core mission of Nuclear Fuel Cycle is to develop, manufacture, characterise, model and ultimately, utilise materials in support of the Advanced Nuclear Fuel Cycle and next generation Nuclear Power generation systems.

It undertakes a number of other research activities through sponsored collaborative research programs and is home to other research activities that enhance our contribution to NST/ANSTO and the wider community. The NFC has access to world class materials processing, testing and characterisation facilities that are capable of handling radioactive materials. It performs its mission by undertaking *Outcome focussed targeted research and development*.

The Senior Scientist, Nuclear Materials Chemistry reports the Leader, NFC or delegate. The position's key internal customers include projects within NFC, however, the position holder will be required to interact with other parts of ANSTO, such as OPAL, ANM. External customers include National and International Universities and research organisations.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities

The key accountabilities for this position include to:

- Develop and undertake leading edge research into materials for the advanced nuclear fuel cycle.
- Utilise extensive knowledge in design, synthesis and characterization of inorganic materials to provide influential support in new innovation and developments in the field. This includes innovative solutions and intellectual property that will give ANSTO a distinct competitiveness for research and commercialization outcomes.
- Solve complex, conceptual scientific problems by seeking knowledge and alternative solutions and developing new techniques, methods and experimental capabilities. This will extend to communicating the results of research both within ANSTO and across the scientific community.
- Lead research tasks to deliver outcomes which align with customer and stakeholder needs utilizing project management methodologies to take responsibilities from conception, development, ensuring visibility is maintained.

- Produce research of an international standard, publish in high quality refereed journals and produce other reputable publications in the area of nuclear materials science and technology.
- Contribute to the research culture within the NFC by coaching and mentoring staff and work collaboratively to share technical expertise
- Ensure safe and effective operation of materials chemistry laboratory by ensuring regulatory requirements ISO 9001/2000 and Good Lab Practice (GLP) are developed and maintained.
- Responsible for contributing to research projects through use of advanced characterisation techniques such as FT-IR, gas sorption, nanoparticle measurements.
- Maintain knowledge of industry best practice and technological developments to ensure research benefits ANSTO.
- Use research networks to coordinate and collaborate with local, national and international scientists to produce research outcomes.
- Undertake additional duties as required and during periods of leave of other staff.
- Fulfil WHS responsibilities as specified in AG-2362 of the ANSTO WHS system.

Decision Making

- The ANSTO values, organisational corporate plan, business plan, operational excellence program, the NST Research strategy and Nuclear Fuel Cycle objectives provide the context for the position.
- The position works within a framework of legislation, policies, professional standards and resource parameters. Within this framework the position has limited independence in determining how to achieve objectives of the unit
- The position is fully accountable for the accuracy, integrity and quality of the content of advice provided, and is required to ensure that decisions are based on sound evidence.
- Determine own work priorities, methods and approaches within the context of agreed work plans and will consult with the line manager on issues that have an impact on the project or research theme.
- The levels of authority delegated to this position are those approved and issued by the Chief Executive Officer. All delegations will be in line with the ANSTO Delegation Manual AS-1682 (as amended or replaced).

Key Challenges

The major challenges for this position include:

- Develop skills and knowledge in nuclear materials
- Develop new materials and processes in the area of nuclear materials.
- Provide scientific guidance within NFC and NST in the area of nuclear materials science and technology
- Develop new and existing collaborations within and outside NFC in nuclear materials development and nuclear materials science and technology

KEY RELATIONSHIPS

Who	Purpose
Internal	
Manager/Executive	<ul style="list-style-type: none"> • Receive guidance and direction • Provide expert, authoritative and evidence-based advice
Work area team members	<ul style="list-style-type: none"> • Provide advice and analysis on a full range of nuclear materials • Contribute to group decision making processes, planning and goals • Collaborate and share accountability
Direct Reports	<ul style="list-style-type: none"> • Nil

External	
Industry, Academia	<ul style="list-style-type: none"> • Provide expert, authoritative and evidence-based advice • Report on work outcomes, outputs, results, project contribution and status. • Build relationships, ensuring effective communication of commercial and research results and to allow collection of data and continued business.

POSITION DIMENSIONS

Staff Data	
Reporting Line	Reports to the Manager of Spent Fuel Management Program in NFC
Direct Reports	Nil
Indirect Reports	Nil

Financial Data (2022/2023)

Revenue / Grants	N/A
Operating Budget	N/A
Staffing Budget	N/A
Capital Budget	N/A
Assets	N/A

Special / Physical Requirements

Location:	Lucas Heights Working in different areas of designated site/campus as needed
Travel:	May be required travel to ANSTO sites from time to time Infrequent travel to meet clients within Australia Some travel to workshops and conferences internationally and nationally
Physical:	Office based physical requirements (sitting, standing, minimal manual handling, movement around office and site, extended hours working at computer) Standing for long periods Public speaking Wearing personal protective equipment for the handling of hazardous and/or radioactive materials Working in confined space environment including wearing respiratory equipment
Radiation areas:	May be required to work in radiation areas under tightly regulated conditions Perform duties in an area where radioactive materials are handled under tightly controlled safety conditions Perform duties with and in an area where hazardous chemicals or materials are handled under tightly controlled safety conditions
Hours:	Willingness to work extended and varied hours based on operational requirements After hours work may be required for short and infrequent periods
Clearance requirements:	Satisfy ANSTO Security and Medical clearance requirements Obtain and maintain appropriate federal government clearance

Workplace Health & Safety

Specific role/s as specified in AP- All Workers

2362 of the ANSTO WHS Officer (definitions found in appendix A of AP-2362)

Management System

Group Executive / General Manager

Managers / Leaders / Supervisors

Other specialised roles identified within the guideline a position holder may be allocated to in the course of their duties

ORGANISATIONAL CHART

Refer to published Organisational Chart.

KNOWLEDGE, SKILLS AND EXPERIENCE

1. PhD in Chemistry, or equivalent experience in Physics, Materials Science, or similar relevant field.
2. A strong materials chemistry background in synthesis of organic and inorganic materials
3. A willingness to work on the development, manufacture, characterisation, model and ultimately, utilisation of materials in support the Advanced Nuclear Fuel Cycle and next generation Nuclear Power generation systems
4. Demonstrated knowledge in use of various analytical tools including particle size characterisation, SEM, Zetasizer, NMR, FT-IT, Raman spectroscopy and gas sorption analysis.
5. Experience in safe and effective operational practices of a chemistry lab.
6. Ability to develop and lead tasks in areas of the advanced nuclear fuel cycle including (i) development and characterisation of materials for extreme environments and (ii) nuclear
7. Strong ability to communicate, including teaming, listening, providing constructive feedback, mentoring/counselling, conflict-resolution and negotiation skills.
8. Demonstrated skills in projects management
9. Demonstrated ability to develop research networks
10. Demonstrated personal qualities which will add value to the work group
11. Demonstrated ability to follow ANSTO policy, procedures and guidelines.

VERIFICATION

Line Manager		Delegated Authority	
Name:	Yingjie Zhang	Name:	Mihail Ionescu
Title:	Research Program Manager	Title:	Leader, Nuclear Fuel Cycle
Signature:		Signature:	
Date:	3/05/2023	Date:	3/05/2023

Appendix 1

ANSTO Job Families
Accounting & Finance
Administration
Communications & Marketing
Compliance & Regulation
Engineering and Technical
Human Resources
ICT & Digital Solutions
Information & Knowledge Management
Legal
Manufacturing
Monitoring & Audit
Operations
Organisational Leadership
Project & Program
Research
Science
Security & Intelligence
Senior Executive
Service Delivery
Strategic Policy
Trades & Labour