Australian Government

ANSTO
Science. Ingenuity. Sustainability.

POSITION DESCRIPTION

Position Title:	Computational Modeller (Linked)
Cluster / Business Unit / Division	Nuclear Science & Technology
Section or Unit:	Nuclear Materials Research and Technology Group (NMR-TG)
Classification:	Band 5/6 Linked
Job Family:	Research
Position Description Number:	PD-2163
Work Contract Type:	Research
STEMM/NON-STEMM:	STEMM
STEMM CATEGORY:	Science

POSITION PURPOSE

Band 5: To develop knowledge and skills in the application of numerical modelling techniques to support the safe operation of ANSTO's nuclear research facilities and to contribute to research and commercial programs. The role applies a range of numerical methods to analyse materials behaviour, component performance and engineering systems, supported by experimental work undertaken to obtain materials data and to validate numerical results. To contribute to ANSTO projects through computational and experimental work, and writing technical reports and peer-reviewed scientific publications.

Band 6: To develop and apply specialist expertise in numerical modelling at international standards, independently leading research and commercial projects through the application of advanced numerical techniques supported by experimental validation. To drive research and technical outcomes that contribute to ANSTO projects through independent experimental and theoretical work, significant technical reporting to stakeholders, and publication in peer-reviewed technical literature.

ORGANISATIONAL ENVIRONMENT

ANSTO is a leading global nuclear science and technology organisation delivering world class research and expertise to benefit Australia and support a more sustainable future. Using nuclear science, we improve health, support industries, provide expert advice to government on nuclear technologies and help develop Australia's nuclear workforce.

Nuclear Science & Technology (NST) incorporate ANSTO's research, innovation, landmark research infrastructure and associated platforms and capabilities. NST conducts research and development in relation to nuclear science and technology and connects people, transfers knowledge and provides nuclear-based products and services for the benefit of Australia.

The Nuclear Materials RTG (NMRTG) research undertakes research in safe, secure and efficient use of nuclear materials and nuclear engineering systems, in nuclear fuel and in nuclear waste

management, utilising our expertise and capabilities. In addition, research is undertaken into a series of industrial processes that support the production of nuclear medicine in ANSTO.

ACCOUNTABILITIES & RESPONSIBILITIES

Key Accountabilities - Band 5

- Apply numerical modelling techniques to support the safe and continued operation of ANSTO's nuclear research facilities and to contribute to research and commercial programs
- Perform experimental work to generate the experimental data needed to inform, calibrate and validate numerical models, and contribute to developing experimental capability to support modelling outcomes
- Apply numerical methods to characterise materials properties and assess the behaviour and performance of engineering components and systems
- Apply quality assurance and verification/validation practices, including relevant engineering design codes and standards, to all numerical modelling work, ensuring the accuracy, integrity and quality of all work and advice provided.
- Undertake duties consistent with the skills and level of this position as reasonably directed by the line manager, recognising that specific tasks and technical focus may change over time in line with ANSTO's evolving priorities
- Publish and contribute to peer-reviewed research in numerical modelling and engineering to build technical expertise and professional reputation
- Keep abreast of emerging numerical modelling methods and computational tools to continuously develop and enhance technical expertise and capability, and contribute to the development of novel numerical modelling methods and tools

  Collaborate with colleagues and external organisations and research groups to prepare commercial and ANSTO-internal technical reports, ensuring accuracy and validity of research outcomes
- Contribute to the supervision of students, secondees and visiting staff
- Represent ANSTO at conferences and professional meetings

In addition to performing all Band 5 accountabilities, the Band 6 role includes the following additional accountabilities:

- Independently design and execute the experimental work needed to inform, calibrate and validate numerical models, and lead advanced numerical analysis to address complex engineering problems
- Lead-author peer-reviewed publications demonstrating established expertise in numerical modelling and engineering
- Independently develop novel modelling approaches and mathematical models for materials and components. Evaluate and adopt emerging numerical modelling methods and computational tools to maintain technical leadership and advance ANSTO's modelling capabilities
- Lead engineering analysis of materials behaviour and component performance under operational conditions to support remaining life assessment, continued safe operation of ANSTO's nuclear research facilities and equipment, and regulatory compliance

- Own and assure the verification and validation rigor of numerical models used to support safety cases and regulatory submissions
- Scope and manage commercial projects, including defining technical solutions, managing client relationships, and leading the technical analysis and reporting needed to inform decision-making on those projects.
- Actively contribute to and help shape research funding and grant applications, proactively identifying external funding opportunities relevant to the group's research priorities
- Build and maintain a reputation for excellence through active participation in national and international professional networks
- Lead collaborative work with external organisations and research groups, and joint activities with other ANSTO research and technology groups, to advance cross-disciplinary research outcomes
- Mentor and supervise staff, students, secondees and visiting staff

Decision Making

- The ANSTO values, organisational corporate plan, business plan, operational excellence program, the NST Research strategy and NMR-TG Business Plan 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 is expected to have significant contribution in determining how to achieve NMR-TG objectives.
- 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 in consultation with line managers.
- Apply 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).
- Band 5: Seek guidance from more senior members of the numerical modelling group. Band 6: Provide guidance and mentoring to junior computational modellers and researchers.

Key Challenges

The major challenges for this position include:

- Developing skills and expertise in numerical modelling methods and techniques for advanced engineering materials relevant to the nuclear industry, and materials under extreme conditions.
- Developing skills and knowledge in nuclear based codes and the current nuclear industry standards.
- Working under a tightly regulated environment.
- Band 5: Drive own tasks to completion whilst managing conflicting priorities and deadlines. Band 6: Develop research project objectives and drive project completion whilst managing conflicting priorities and deadlines.

- Utilise technical experience to address technically challenging computational and engineering problems, which requires constant learning and keeping abreast of technological and regulatory changes relevant to nuclear systems
- Willingness to challenge established ways of working in favour of more productive approaches.

KEY RELATIONSHIPS

Who	Purpose
Internal	
Manager/Executive	• Receive guidance and direction • Provide expert, authoritative and evidence based advice • Provide regular updates on key tasks, issues & priorities
Work area team members	• Band 5: Support team members and work collaboratively to contribute to achieving project outcomes • Band 5: Contribute to the development of numerical models for nuclear materials and engineering systems • Band 6: Contribute to group decision making processes, planning and goals • Band 6: Collaborate and share accountability • Band 6: Mentor and supervise junior computational modellers, students, secondees and visiting staff
Direct Reports	• Nil
External	
Industry	• Provide expert, authoritative and evidence based advice • Report on work outcomes, outputs and results and 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 Research Program Manager
Direct Reports	Nil
Indirect Reports	Nil

Financial Data (2025/2026)	
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 materials characterisation
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
Linked Role:	The Transition from Band 5 to Band 6 is not automatic and requires a full written submission, in addition to the attached checklist, to demonstrate how the employee meets the requirements. Transition will only occur following approvals from the Research Program Manager and Director Nuclear Materials Research and Technology Group.

Workplace Health & Safety	
Specific role/s as specified in AP-2362 of the ANSTO WHS Management System	All Workers 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

Band 5	Band 6
1. PhD in Mechanical Engineering, Materials Science, Nuclear Engineering or equivalent.	Same as Band 5
2. Demonstrated ability to work independently and effectively, and contribute and share knowledge within a research project team environment.	Same as Band 5
3. Demonstrated personal qualities that will add value to the research project teams.	Same as Band 5
4. Demonstrated knowledge of numerical modelling methods and computational tools for analysis of engineering materials, components and systems.	Demonstrated track record of independently applying and extending numerical modelling methods to novel or complex problems
5. Demonstrated ability to develop numerical and mathematical models for materials properties and component behaviour.	Demonstrated track record of independently developing novel numerical/mathematical models, evidenced by lead-authored publications or technical reports
6. Demonstrated capacity to carry out experimental work.	Same as Band 5

7.		Demonstrated experience contributing to research funding/grant applications, and applying verification & validation practices to numerical models
8.	Ability to develop and maintain productive working relationships across a broad range of internal and external stakeholders	Demonstrated productive working relationships across a broad range of internal and external stakeholders
9.	Excellent interpersonal and communication skills, both written and verbal	Same as Band 5
10.		Demonstrated ability to independently scope, manage and deliver commercial and research projects, and to prioritise tasks to optimise allocation of resources
11.		Demonstrated knowledge of engineering codes and standards relevant to nuclear and advanced engineering applications.

VERIFICATION

This section verifies that the line manager and appropriate senior manager/executive confirm that this is a true and accurate reflection of the position.

Line Manager	**Delegated Authority**
Name: Ondrej Muransky	Name: Michael Moody
Title: Research Program Manager	Title: Director, Nuclear Materials Research and Technology Group
Signature:	Signature:
Date:	Date:

Numerical Modeller (PD-2163) **Band 5 to Band 6 Transition Checklist**	
Name:	
Commencement Date:	
Assessment Date:	

Written submission demonstrating and justifying how the employee meets requirements must also be attached.

Requirements for transition	**Met Criteria**
a) Minimum 5 years working as Computational Modeller (Band X) OR b) Minimum 5 years equivalent experience	☐ Yes ☐ No OR ☐ Yes ☐ No
Demonstrated capability to independently manage projects to successful completion.	☐ Yes ☐ No

Demonstrated ability to independently and responsibly perform Band 5 accountabilities and apply required knowledge, skills and experience for the Band 6 position including:	
Undertake Band 5 accountabilities independently with no direct supervision	☐ Yes ☐ No
Independently design and execute advanced numerical analysis and experimental validation to address complex engineering problems relevant to the safe and continued operation of ANSTO's nuclear research facilities, equipment and systems, and to advanced engineering research programs.	☐ Yes ☐ No
Lead engineering analysis of materials behaviour and component performance under operational conditions to support remaining life assessment, continued safe operation of ANSTO's nuclear research facilities and equipment, and regulatory compliance in line with Australian and international standards for OPAL, ANM and external commercial customers.	☐ Yes ☐ No
Independently develop novel modelling approaches and mathematical models for materials and components, and solve complex engineering problems by seeking knowledge and alternative solutions.	☐ Yes ☐ No
Scope and manage commercial projects, including defining technical solutions and managing client relationships. Mentor and supervise junior computational modellers, students, secondees and visiting staff.	☐ Yes ☐ No

Attach written submission demonstrating and justifying how the employee meets <u>each</u> of the above requirements.

Manager Recommendation

I have reviewed the employee's competence in accordance with Linked Role PD-2163 and certify that the employee meets all requirements for transition and recommend transition from Band 5 to Band 6 be endorsed as demonstrated in the attached written submission detailing how the employee meets each of the requirements.

Name & Title:			
Signature:		Date:	

NMR-TG Director

I have assessed the submission and confirm that the employee meets all requirements for transition from Band 5 to Band 6.

Name & Title:			
Signature:		Date:	