HR191	**POSITION DESCRIPTION**	UNIVERSITY OF CAPE TOWN IYUNIVESITHI YASEKAPA • UNIVERSITEIT VAN KAAPSTAD

NOTES

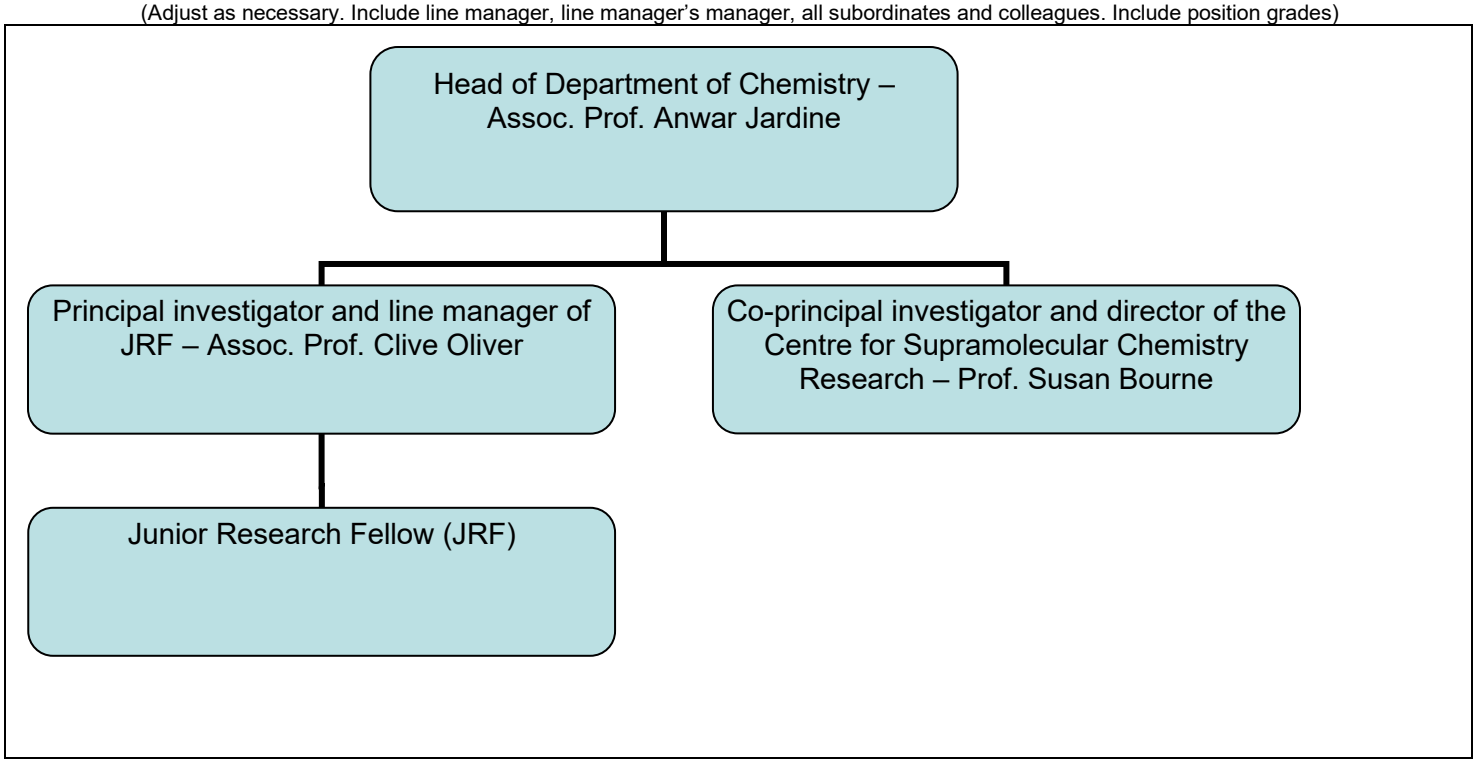
- Forms must be downloaded from the UCT website: http://forms.uct.ac.za/forms.htm
- This form serves as a template for the writing of position descriptions.
- A copy of this form is kept by the line manager and the position holder.

POSITION DETAILS

Position title	Junior Research Fellow		
Job title (HR Business Partner to provide)			
Position grade (if known)		Date last graded (if known)	
Academic faculty / PASS department	Science		
Academic department / PASS unit	Chemistry		
Division / section	Centre for Supramolecular Chemistry Research (CSCR)		
Date of compilation	24 May 2024		

ORGANOGRAM

(Adjust as necessary. Include line manager, line manager's manager, all subordinates and colleagues. Include position grades)



PURPOSE

The main purpose of this position is:

The CSCR has an extensive record in conducting research in the area of supramolecular chemistry involving small molecules (i.e., non-macromolecular), with a particular focus on porosity studies in recent years. The JRF will embark on new research directions in the areas of metal-organic framework (MOF) and organic porous materials research, seeking to elucidate structural changes of porous material during sorption processes, as well as to explore the use of these materials in catalytic transformations that promotes green chemistry and sustainability. This project will require a researcher with at least two years of postdoctoral experience and advanced synthetic and analytical skills. A technical inclination to solve equipment hardware- and software-related issues will be advantageous. The successful candidate will be expected to initially manage existing projects in porous materials research in the CSCR but will also be afforded the opportunity to initiate and lead independent projects in this area of research. The primary duties of the successful candidate will be largely research oriented, however the successful candidate will be mentored in other areas of being an academic. Thus, the JRF will have an opportunity to develop an independent research profile and thus be more competitive for future research positions, including academic positions at tertiary institutions.

CONTENT

Key performance areas		% of time spent	Inputs (Responsibilities / activities / processes/ methods used)	Outputs (Expected results)
E.g.	General and office administration	25%	Takes, types up and distributes minutes and agendas for monthly departmental meeting. Greets visitors, enquires as to the nature of their visit and directs them to the appropriate staff member.	All staff members receive an electronic copy of accurate minutes and agendas, in the departmental template/format, a week before the meeting. Visitors are directed to appropriate staff member in a professional and efficient manner.
1	Research and project management	75%	• Manage existing projects in the areas of MOF and other porous materials research within the CSCR • Prepare and write manuscripts for publication in peer-reviewed, international journals of high repute • Prepare and write grant funding applications which will secure the continuation of the project beyond the three-year contract • Initiate and lead new projects in the areas of MOF and other porous materials research within the CSCR	• Project activities successfully planned and carried out timeously to a high standard • Prepare a comprehensive annual report detailing project activities, successes and suggested directions for the following year • Publish one or 2-3 publications annually linked to projects on porous materials • Report on submitted grant funding applications • Report on new projects initiated in the research area of porous materials
2	Supervision of postgraduate students	20%	• Co-supervise MSc/PhD projects related to own research	• Contribution of substantive, high-quality supervision to MSc/PhD projects related to own research • Students completed research projects and manuscript preparation, as well as completed or nearly completed theses
3	Undergraduate Teaching	5%	• Limited lecturing of undergraduate classes where available in the Chemistry department (~ 10 lectures per annum)	• Effective teaching (as evaluated through student feedback) and completion of all duties associated with lectured content
4				

MINIMUM REQUIREMENTS

Minimum qualifications	A PhD in the field of Supramolecular Chemistry or Inorganic Chemistry, which preferably focused on the synthesis and solid-state analysis of metal-organic frameworks (MOFs) or purely organic porous materials.
Minimum experience (type and years)	• A minimum of two years postdoctoral research experience focusing on metal-organic frameworks or purely organic materials research
Skills	• Experience in managing research projects • A track record of high-quality, original research, focused on porosity studies and published in reputable international, peer-reviewed journals • Evidence of managing various aspects of manuscript preparation for publication • High-level competency in the synthesis of metal-organic frameworks and/or porous organic materials • High-level competency in the solution and refinement of crystal structures from single crystal X-ray diffraction data and preparation of crystal structures for publication • Evidence of in-depth supramolecular structural analysis beyond molecular structural analysis • High-level competency in powder X-ray diffraction analysis • High-level competency in thermogravimetric and differential scanning calorimetry analysis • Hiigh-level competency in gas sorption analysis of porous materials
Knowledge	• Substantive knowledge in the fields of metal-organic frameworks; organic porous materials, supramolecular chemistry and crystallography
Professional registration or license requirements	N/A.
Other requirements (If the position requires the handling of cash or finances, other requirements must include 'Ability to handle cash or finances'.)	**Advantageous:** • Original research oral presentations at national and international conferences • Evidence of assisting MSc and PhD students with their projects • Experience in thesis writing supervision • Experience in the design and analysis of supramolecular systems that undergo single-crystal-to-single-crystal transformations • High-level competency in collecting and processing own single-crystal X-ray diffraction data, in particular of multiple, successive data sets under variable conditions of temperature, gas pressure and/or humidity • High-level competency in operation of powder X-ray diffractometer under variable conditions of temperature, gas pressure and/or humidity • High-level competency in operating gas sorption equipment and collecting own gas sorption isotherms • Technical skills in problem solving equipment hardware- and software-related issues

Competencies (Refer to UCT Competency Framework)

Competence	Level	Competence	Level
Analytical thinking – Problem solving	2	Planning and organizing – work management	2
Building Interpersonal Relationships	2	Adaptability/ flexibility	2
Communication (writing and verbal)	2	Conceptual thinking	2
Teamwork - collaboration	2	Creativity and innovation	2

SCOPE OF RESPONSIBILITY

Functions responsible for	Managing research projects with guidance from the line manager and PIs
Amount and kind of supervision received	Regular (weekly)
Amount and kind of supervision exercised	Co-supervision of MSc/PhD projects
Decisions which can be made	To be set out an decided with line manager and PIs – most day-to-day decisions regarding experimental and analytical work can be made by the JRF
Decisions which must be referred	Most impending decisions regarding the direction of the projects can be discussed with line manager and PIs

CONTACTS AND RELATIONSHIPS

Internal to UCT	Reports to line manager and PIs
External to UCT	Contact with possible external funding agencies