**Position Title**  
Research Associate (WAVES Galaxy Groups)

**Classification**  
Level A

**School/Division**  
Office of the Deputy Vice-Chancellor (Research)

**Centre/Section**  
International Centre for Radio Astronomy Research (ICRAR)

**Supervisor Title**  
Laureate Fellow and Professor

**Supervisor Position Number**  
321096

**Position Number**  
New

---

**Your work area**

ICRAR is a WA State funded high profile equal joint venture established in 2009 between Curtin University and The University of Western Australia (UWA). The Centre’s headquarters are located at UWA, with research nodes at both UWA and Curtin. ICRAR is one of the lead Australian organisations participating in the international Square Kilometre Array (SKA) Project. ICRAR has been further funded from 2019 to 2024 with $60 Million by the WA State Government and equal contribution from the Joint Venture Universities. ICRAR is one of the largest astronomy organisations in Australia.

This position will join the Evolving Universe science unit at the International Centre for Radio Astronomy Research (ICRAR).

---

**Reporting structure**

Reports to: Laureate Fellow and Professor

---

**Your role**

As a UWA-based Research Associate within the International Centre for Radio Astronomy Research (ICRAR), you will join Professor Driver’s Laureate team and take on a central role within the 4MOST WAVES collaboration to lead the construction of the WAVES Galaxy Group Catalogue. You will interface with leading numerical simulation teams to devise and fine-tune an optimal algorithm for robust group, filament and void finding and apply this to WAVES and other comparable datasets (e.g., DESI-BGS and 4HS). This will involve exploring friends-of-friends, halo-finding and hybrid algorithms, mixed spectroscopic and photometric redshift samples, and other new and novel methods for group, filament and void finding.

In parallel you will be expected to lead research using these catalogues to improve our empirical knowledge and understanding of the dark matter distribution, as defined by haloes, and to reconstruct their recent-time evolution as well as pursue tests of Lambda CDM predictions.

WAVES will receive about 18% of the observing time on 4MOST over its first 5 years of operations (commencing in late 2024), and is the ROI based on a A$6million investment by UWA and the Australian community into the 4MOST Consortium, along with additional contributions from WAVES partners (predominantly the University of Hamburg). The WAVES goals are outlined in ESO Messenger Vol 175 and focussed on the study of the dark matter distribution, galaxy populations, and galaxy and group evolution over the past 8 Gyrs.

You will become a core member of the WAVES team with full access to all 4MOST surveys and charged with leading the science exploitation around galaxy groups.
Specific responsibilities include: the delivery of the WAVES Galaxy Group, Filament and Void catalogues.

For more information, visit the below websites:
ICRAR: https://www.icrar.org
WAVESI: https://wavesurvey.org/

Your key responsibilities

Act as an international spokesperson and advocate for the 4MOST WAVES survey.
Participate in and possibly lead the WAVES Galaxy Group Science Team.
Develop optimal algorithms for galaxy group finding and their application to WAVES and similar datasets.
Lead a science program related to galaxy groups, filaments and/or voids and their evolution based on 4MOST WAVES and associated (e.g., GAMA, DEVILS, SDSS, DESI-BGS and 4HS) data.
Contribute to the supervision of ICRAR PhD and Masters students.
Contribute to the local Astronomy environment including taking on a service role at ICRAR.
Other duties as directed.

Your specific work capabilities (selection criteria)

Have a PhD in a field relevant to extragalactic astronomy.
A demonstrable track-record in science publications related to galaxy groups.
Familiarity with group-finding algorithms and a willingness to take this to the next level through innovative methods and application to numerical simulations.
Experience with large galaxy catalogues.
Excellent written and verbal communication skills.
Demonstrated ability to work independently, show initiative, problem solve and work productively as part of a team.
The ability to interact and collaborate with researchers and work reliability and effectively in distributed scientific collaborations.
Knowledge of high- and/or low-level computer programming (e.g. Python, R, C, C++, etc)
Experience working with any of 4MOST would be highly regarded.
Experience in working with large teams.
Ability to work productively with students and/or contribute to outreach programmes.

Special requirements (selection criteria)

There are no special requirements.

Compliance

Ensure you are aware of and comply with legislation and University policy relevant to the duties undertaken, including:
The University’s Code of Conduct hr.uwa.edu.au/policies/policies/conduct/code/conduct
Inclusion and Diversity [web.uwa.edu.au/inclusion-diversity](web.uwa.edu.au/inclusion-diversity)
Safety, health and wellbeing [safety.uwa.edu.au/](safety.uwa.edu.au/)