

Position Title:	Research Associate - The Jim Buckee Fellowship in Astrophysics
Position Classification:	Level A
Position Number:	313674
Faculty/Office:	Engineering and Mathematical Sciences
School/Division:	School of Physics, Mathematics and Computing
Centre/Section:	ICRAR (International Centre for Radio Astronomy Research)
Supervisor Title:	Associate Professor
Supervisor Position Number:	312868

Your work area

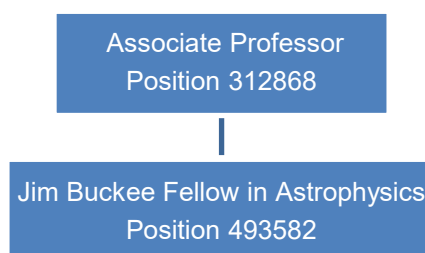
ICRAR is a high profile equal joint venture established in 2009 between Curtin University and The University of Western Australia (UWA). The Centre's administrative headquarters are located at UWA with research nodes at both UWA and the Curtin. ICRAR is one of the lead Australian organisations participating in the international SKA Project. ICRAR was funded under an ICRAR II grant from 2014/15 to 2018/19 with \$26 Million from the WA State Government. The State Government has committed a further \$25 Million from 2019/20 to 2023/24 for ICRAR III.

UWA graduate Dr Jim Buckee, who gained a BSc Honours at UWA in 1967 and a PhD in Astrophysics at Britain's Oxford University in 1970, has generously endowed a new research position at UWA that will play a key role in the SKA project.

ICRAR is looking for a highly motivated scientist to apply for the prestigious Jim Buckee Fellowship in Astrophysics to undertake research related to the astrophysical interpretation of data from forthcoming large radio and optical galaxy surveys (e.g. ASKAP DINGO & WALLABY, 4MOST WAVES), using state-of-the-art supercomputer simulations and galaxy formation models. Applicants must have a PhD in theoretical/computational astronomy or related discipline.

This is a 3-year appointment.

Reporting Structure



Your role

Over the coming decade, astronomers will be deluged with enormous datasets from galaxy surveys with the power to revolutionize our understanding of how galaxies form and evolve over cosmic time. Radio telescopes such as the Australian SKA Pathfinder (ASKAP), the Murchison Widefield Array (MWA), and the SKA, will provide powerful insights into how galaxies assemble their neutral hydrogen, the raw material from which stars are made, and how the first galaxies ionized the Universe. Sophisticated multi-object spectrographs, such as 4MOST, will map the stellar content of galaxies, from the most massive giants to the faintest dwarfs, and help to shed light on dark matter. At the same time, interpreting these datasets will require state-of-the-art cosmological simulations, galaxy formation models, and statistical analyses.

Observational astronomers at ICRAR/UWA lead large galaxy surveys (e.g. ASKAP DINGO & WALLABY, WAVES on 4MOST), while our computational astronomers create tailored synthetic galaxy surveys,

building on predictions from large cosmological simulations and the latest galaxy formation models. The successful Jim Buckee Fellow will work closely with both observational and computational astronomers on an area of research focus at ICRAR/UWA, although we are particularly interested in applicants who will develop a research program to address a fundamental science question (e.g. the nature of dark matter; the relationship between galaxy gas content and star formation; the influence of environment on galaxy properties) and to maximize the scientific return of one or more of our key galaxy surveys. The successful Fellow will have expertise in theoretical and computational astrophysics, statistical analysis, high performance computing, and a good understanding of observational astronomy and astrophysics.

Key responsibilities

- Generation and detailed analysis of cosmological galaxy formation models and simulations.
- Modelling galaxy populations across cosmic time and creation of synthetic radio skies.
- Conduct world-class scientific research and publish in international refereed journals.
- Contribute to the supervision of undergraduate and postgraduate research students.

Your specific work capabilities (selection criteria)

- PhD in computational astrophysics or related discipline.
- Excellent knowledge of cosmological simulations and galaxy formation modelling.
- Good knowledge of principles of observational extragalactic astronomy and galaxy surveys.
- Demonstrated research ability in a field of relevance to galaxy formation and evolution modelling.
- Excellent verbal and written communication skills.
- Ability to participate effectively in distributed scientific collaborations.
- Strong publication record evidenced by international refereed publications.
- Excellent computing and data management skills.
- Good planning and organisational skills.
- Ability to work productively as part of a team that includes students.

Special Requirements

Please submit a CV, the names and contact details of three referees, a description of your past research achievements, and an outline of your future proposal.

Compliance

Workplace Health and Safety

All supervising staff are required to undertake effective measures to ensure compliance with the Occupational Safety and Health Act 1984 and related University requirements (including Safety, Health and Wellbeing Objectives and Targets).

All staff must comply with requirements of the Occupational Safety and Health Act and all reasonable directives given in relation to health and safety at work, to ensure compliance with University and Legislative health and safety requirements.

Details of the safety obligations can be accessed at <http://www.safety.uwa.edu.au>

Inclusion & Diversity

All staff members are required to comply with the University's Code of Ethics, Code of Conduct and Inclusion and Diversity principles. Details of the University policies on these can be accessed at <http://www.hr.uwa.edu.au/policies/policies/conduct/code>, <http://www.web.uwa.edu.au/inclusion-diversity>.