

RESEARCH FELLOW/SENIOR RESEARCH FELLOW IN REPRESENTATION THEORY OF QUANTUM GROUPS
SCHOOL OF MATHEMATICS AND STATISTICS
REFERENCE NO. 1323/0812

- **Contribute to a well funded ARC Discovery Project**
- **Further your research career in quantum algebras, supersymmetry and invariant theory**
- **Academic level B/C - Remuneration package: \$104-\$147K p.a. which includes leave loading and up to 17% super)**

The University of Sydney is Australia's first university with an outstanding global reputation for academic and research excellence. It employs over 7500 permanent staff supporting over 49,000 students.

[The School of Mathematics and Statistics](#) is one of the largest in Australia with research strengths in many areas of mathematics and statistics. The school attracts a strong body of excellent students as well as Australian Research Council (ARC) grants, fellowships, and other competitive external funding.

We are seeking to appoint a Research Fellow (level B) or Senior Research Fellow (level C) in Representation Theory of Quantum Groups to contribute to a research programme investigating quantum algebras, supersymmetry and invariant theory. This position is funded by an Australian Research Council (ARC) Discovery Project Grant "Quantised algebras, supersymmetry and invariant theory" held by Professors [Gus Lehrer](#) and [Ruibin Zhang](#).

The aim of this project is to use an analysis of tensor powers using diagram categorical methods to throw light on tilting modules and the Lusztig character formula for quantum groups at roots of unity, and algebraic groups and supergroups in positive characteristic. The endomorphism algebras of tensor powers will be studied using geometric and algebraic methods, including scheme theoretic density arguments and cellular algebra theory.

As a dedicated member of the team you will contribute to all aspects of the project including:

- developing and presenting new and innovative ideas
- publishing articles in international peer-reviewed journals and presenting at conferences
- writing and contributing to grant submissions
- postgraduate student supervision.

Teaching is not a requirement of this role however opportunities to teach may be available if desired. To secure this role you must have expertise in a subset of the following areas: quantum group actions on non-commutative algebras, invariant theory, Kazhdan-Lusztig theory, Lie superalgebras and their representations, canonical bases, cellular algebras and quadratic algebras, the BMW algebras as endomorphism algebras of tensor space and algebraic geometry.

You will also demonstrate:

- a PhD degree in mathematics
- expertise in either quantum group actions and representations or algebraic geometry, ideally in both
- ability to conduct high-quality research either independently or as part of a research team
- published research as sole author or in collaboration
- excellent written and verbal communication skills and good organisational skills
- a research record and/or expertise in two or more of the areas mentioned above
- a strong research track record including publications and successful grant acquisition (level C).

This is an opportunity to conduct research in a collaborative research team based at the School of Mathematics and Statistics at the University of Sydney, where there is a large and active group in representation theory.

Term

The position is full-time fixed-term for one year subject to completion of a satisfactory probation and confirmation period for new appointees. Further offers may be available subject to funding, need and performance. Membership of a University approved superannuation scheme is a condition of appointment.

Remuneration package:

Level B: \$104K - \$124K p.a. (which includes a base salary of \$88K - \$105K p.a., leave loading and up to 17% employer's contribution to superannuation).

Level C: \$128K - \$147K p.a. (which includes a base salary of \$108K - \$124K p.a., leave loading and up to 17% employer's contribution to superannuation).

Some support towards relocation and visa sponsorship will be available for the successful appointee if required.

All applications must be submitted via the University of Sydney careers website. Visit sydney.edu.au/positions and search by the reference number for more information and to apply.

CLOSING DATE: **5 November 2012** (11:30PM Sydney time)

The University is an Equal Opportunity employer committed to equity, diversity and social inclusion. Applications from equity target groups and women are encouraged.

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