

Geraint F. Lewis

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Professor of Astrophysics

A leader in theoretical, computational and observational astrophysics, with a focus upon uncovering the nature of dark matter and dark energy that dominate our universe. An accomplished teacher, public speaker and international author.

PROFESSIONAL EXPERIENCE

- Present **The University of Sydney**
Sept 2002 - *Professor of Astrophysics, Teaching and Research*
Lecturing on physics topics over all academic years.
Research supervisor of undergraduate and postgraduate students.
- Sept 2002 **Anglo-Australian Observatory**
Jan 2000 - *Research Astronomer*
Support astronomer for 2dF and wide-field camera.
- Dec 1999 **University of Washington (Seattle) & University of Victoria**
Jun 1997 - *Postdoctoral researcher*
Focus upon numerical simulations of structure formation
- Jun 1997 **State University of New York, Stony Brook**
Jul 1996 - *Postdoctoral Research*
Focus upon numerical simulations of gravitational microlensing
- Jun 1996 **Institute of Astronomy, The University of Cambridge**
Jun 1995 - *Postdoctoral researcher*
Focus upon calibrating the UK Adaptive Optics Program

EDUCATION

- Nov 1995 **Institute of Astronomy, The University of Cambridge**
PhD in Astrophysics
Title "Gravitational Microlensing"
- Jul 1990 **Queen Mary & Westfield College, The University of London**
BSc (Hons 1st Class) in Physics and Astronomy
Position in class: First

AWARDS AND HONOURS

- 2016 **Australian Institute of Physics Walter Boas Medal**
- 2015 **Australian Research Council Future Fellow**
- 2011- "Caught in the act by PAndAS: An unparalleled view of galaxy evolution"
- 2008 **Dean's Citation for Excellence in Teaching**

Leadership: As a senior academic at the University of Sydney's School of Physics, I have undertaken a number of significant leadership roles, both within the university and in the wider community. These roles have resulted in the development and application of key approaches to strategy, support and mentoring, as well as providing me with insights into the research landscape across Australia, and its international standing. These roles have included:

Deputy Director of the Sydney Informatics Hub: As of mid-2016, I was appointed to the position of Deputy Director in the Sydney Informatics Hub, a new core facility for research at the University of Sydney. In this position, I am responsible for the University's approach to big data, informatics, high performance computing, and visualisation, especially with regards to its growing impact on research. With this, I work towards the development of the University's strategic approach to providing computational infrastructure for traditional areas of computing strength, including medicine, geophysics and astrophysics, as well as identifying the needs for emerging users of big data, including the arts and the social sciences, as well as being business owner for key computational, network and storage infrastructure. My team within the Sydney Informatics Hub provide key support and training to researchers at all levels, ensuring smooth transitions from desktop to supercomputing environments.

Excellence in Research Australia Citation Steward: I played a key role in the University of Sydney's approach to the Excellence in Research Australia (ERA) exercise in 2015, acting as the steward responsible for citation-based disciplines. This involved collating the significant data on publications resulting from the University of Sydney research, and optimizing the resultant submission based upon the ERA framework and ensuring data fidelity, as well as collating and coordinating the development of the required Field-of-Research narratives. The University received an excellent outcome in this assessment, with physical sciences receiving 5's across all fields.

Additional Roles: I also served on the Australian Research Council College of Experts for three years, allocating national research funding for Future Fellowships and Linkage funds. Additionally, I was the Associate Head (Research) at the School of Physics for more than five years, developing strategy and supporting research activities, including grant writing and applications for fellowships.

Teaching: At the University of Sydney, I have undertaken a range of teaching at all levels, including first year classical mechanics and electromagnetism, as well as higher year courses in particle physics, and honours-level general relativity. Furthermore, I have supervised a range of laboratory and tutorial-based activities, as well as driving new curricula. To support my teaching efforts, I received a Graduate Certificate in Educational Studies, focusing upon higher education in 2003. I regularly receive excellent review for my teaching and was awarded a Dean's Citation for excellence in teaching in 2008.

I have extensive experience in student supervision, successfully completing numerous postgraduate and undergraduate research projects. I regularly supervise a group of around nine PhD students, with three submissions in 2018 so far, and two more expected, with three new international students beginning in the second half of the year.

Outreach: I have extensive outreach experience, speaking regularly at public events, schools and to various societies. Most recently, these have focused upon outreach events associated with the publication of my book, "A Fortunate Universe: life in a finely tuned cosmos", with numerous presentations across Australia. In 2017, I presented a talk on "A Fortunate Universe at the Royal Institute in London", as well as other UK-based institutions. I will again present at the Royal Institute in July 2018, talking on "The End of Time"; I will return to London in September 2018 to talk at New Scientist Live, as well as part of Sydney Science Week.

I also have extensive experience in scientific writing, especially for "The Conversation" and, more recently, providing Op-Eds for New Scientist. Some of my work has been included in the 2015 and 2016 editions of the Best Australian Science Writing, something of which I am particularly proud.

Funding Summary:

I have successfully bid for, and be awarded, substantial competitive research funding.

Below provides a selection of recently awarded funds.

2018	John Templeton Fellowship <i>Galaxy Formation and the Fine- Tuning of the Universe for Intelligent Life</i> Barnes et al. \$280,000
2018	Santander Visiting Fellowship at the University of Surrey, UK <i>Galactic Archaeology</i> Lewis £4,380
2018	European Southern Observatory Visiting Scientist <i>The gravitational lens system SPD.81</i> Lewis €8,700
2017	Australian Research Council LIEF Grant <i>Access to the National Computing Infrastructure peak supercomputing facility</i> Hawkes et al. \$900,000
2016	Australian Research Council LIEF Grant <i>Distributed Memory Cluster</i> Lewis et al. \$1,040,000
2015	John Templeton Fellowship <i>The Fine- Tuning of the Universe for Intelligent Life</i> Barnes et al. \$45,000
2014	Australian Research Council LIEF Grant <i>Renewing Intersect's share of the NCI's peak facility</i> Hawkes et al. \$1,025,000
2014	Australian Research Council Discovery Project <i>Orbits and Interactions of Satellite Galaxies: A Fundamental Test of Cosmology</i> Power et al. \$363,000
2013	Australian Research Council LIEF Grant <i>Mapping the universe with PanSTARRS</i> Sadler et al \$740,000
2013	Australian Research Council Discovery Project <i>Observing the synthetic universe: revealing the dark cosmos with future telescopes</i> Lewis et al \$390,000
2011	Australian Research Council Discovery Project <i>Caught in the act: an unparalleled view of galaxy evolution</i> Lewis et al \$270,000
2011	Australian Research Council Super Science Project <i>Accretion and Feedback in Galaxies with Cosmic Time</i> Bland-Hawthorn et al \$556,800
2010	Australian Research Council Future Fellowship <i>Caught in the act: an unparalleled view of galaxy evolution</i> Lewis et al \$779,264