

Eamon O’Gorman - CV

CONTACT INFORMATION

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RESEARCH STATEMENT

My research to date has focused on stellar evolution, with a specific emphasis on late K and early M spectral type red giants and red supergiants. These stars have substantial mass-loss rates yet the mechanisms which drives this large mass-loss are unknown and remain one of the great unsolved problems in modern stellar astrophysics. To gain insight into the mass-loss mechanisms, I have observed these stars using both millimeter and centimeter radio interferometric techniques, which have probed both their wind acceleration zones and their circumstellar environments. As a post-doctoral researcher at the ASIAA I plan to continue such millimeter and centimeter interferometric observations using instruments such as ALMA, the JVLA, and e-MERLIN. I believe my research interests complement those of the interstellar and circumstellar (ICSM) group at the ASIAA, while my experience in radio interferometric data analysis would also be of great benefit to the ASIAA group in general.

EDUCATION

Trinity College Dublin, Dublin, Ireland

Doctor of Philosophy

October 2009 – present

- Advisor: Professor Graham Harper
- Thesis title: *Radio Interferometric Studies of Cool Evolved Stars*
- Thesis successfully defended on 15th November 2013
 - External Examiner: Professor Tom Millar (Queen’s University Belfast, Northern Ireland)
 - Internal Examiner: Professor Peter Gallagher

International Space University (ISU), Strasbourg, France

M.Sc., Space Studies

September 2008 – August 2009

University College Dublin (UCD), Dublin, Ireland

B.Sc., Theoretical Physics, (First class honours)

September 2003 – June 2007

HONOURS AND AWARDS

- Enterprise Ireland/European Space Agency scholarship to study at the ISU, 2008
- UCD Entrance Scholar, 2003

REFEREED PUBLICATIONS

O’Gorman, E., Harper, G. M., Brown, A., Drake, S., Richards, A. M. S. *Multi-wavelength Radio Continuum Emission Studies of Dust-free Red Giants*, 2013, AJ, 146, 98.

Richards, A. M. S., Davis, R. J., Decin, L., Etoka, S., Harper, G. M., Lim, J. J., Garrington, S. T., Gray, M. D., McDonald, I., **O’Gorman, E.**, Wittkowski, M. *e-MERLIN resolves Betelgeuse at λ 5 cm: hotspots at $5 R_{\star}$* , 2013, MNRAS, 432, L61.

O’Gorman, E., Harper, G. M., Brown, J. M., Brown, A., Redfield, S., Richter, M. J., Requena-Torres, M. A. *CARMA CO($J = 2 - 1$) Observations of the Circumstellar Envelope of Betelgeuse*, 2012, AJ, 144, 36.

Sada, P. V., Deming, D., Jennings, D. E., Jackson, B. K., Hamilton, C. M., Fraine, J., Peterson, S. W., Haase, F., Bays, K., Lunsford, A., **O’Gorman, E.** *Extrasolar Planet Transits Observed at Kitt Peak National Observatory*, 2012, PASP, 124, 212.

Sada, P. V., Deming, D., Jackson, B., Jennings, D. E., Peterson, S. W., Haase, F., Bays, K., **O’Gorman, E.**, Lunsford, A. *Recent Transits of the Super-Earth Exoplanet GJ 1214b*, 2010,

ApJ, 720, L215.

CONFERENCE
PRESENTATIONS

Oral:

O’Gorman, E. *Radio Interferometric Studies of Cool Evolved Stellar Mass Outflows*. DIAS Seminar, Dublin, Dublin Institute for Advanced Studies, Ireland, February 2013.

O’Gorman, E., et al. *Probing the Thermodynamics of Red Giant Mass Outflows with the JVLA*. Astronomical Science Group of Ireland, Galway, Ireland, November 2012.

O’Gorman, E., et al. *Probing the Thermodynamics of Red Giant Mass Outflows with the JVLA*. Radio Stars and Their Lives in the Galaxy, MIT Haystack Observatory, MA, USA, October 2012.

O’Gorman, E. *CO in the Circumstellar Envelope of Betelgeuse with CARMA*. The 41st Young European Radio Astronomers Conference, University of Manchester/Jodrell Bank Observatory, UK, July 2011.

Poster:

O’Gorman, E., Harper, G. M. *What is Heating Arcturus’ Wind?*

16th Cambridge Workshop on Cool Stars, Stellar Systems, and the Sun, University of Washington, Seattle, USA, August 2010.

ACCEPTED
PROPOSALS
AS PI

O’Gorman, E., et al. *Beta Gem b: An alternative candidate in the search for extrasolar planetary radio emission (II)*, GMRT, 2013, ID: 25_039

O’Gorman, E., et al. *Beta Gem b: An alternative candidate in the search for extrasolar planetary radio emission*, GMRT, 2013, ID: 24_013

O’Gorman, E., et al. *Thermal Continuum Mapping of Red Giant Chromospheres*, CARMA, 2012, ID: c1038

O’Gorman, E., et al. *L and S band Continuum Observations of Arcturus: Completing a Clean Sweep*, VLA, 2012, ID: VLA-12A-472

SHORT-TERM
RESEARCH
STAYS

National Centre for Radio Astrophysics, India, 2013: Collaboration with Dr. Sandeep Sirothia to prepare our GMRT 150 MHz observations and carry out initial data analysis.

Harvard-Smithsonian Center for Astrophysics, USA, 2011: Collaboration with Dr. Joanna Brown to carry out initial analysis on our CARMA millimeter data using CASA.

NASA Goddard Space Flight Center, USA, 2009: Three month student internship with Dr. Drake Deming in the area of transiting exoplanet characterization. Analyzed data from the FLAMINGOS infrared camera on the 2.1 m Kitt Peak National Observatory Telescope.

TEACHING
EXPERIENCE

- September 2010 - April 2012: Bi-weekly physics tutorials for undergraduate engineering students.
- September 2009 - April 2010: Teaching assistant for undergraduate physics students.

OUTREACH

- Throughout the year we carry out a “Build a Comet in the Lab” workshop for both secondary school students interested in pursuing physics in college, and for primary school students from disadvantaged backgrounds.
- Regularly visit secondary schools to discuss career opportunities in physics and astrophysics to prospective students.

- Active member in “SunSpotter”, a new project which aims to enlist the help of the public to readily identify and characterize sunspots in NASA satellite image.

PROGRAMMING IDL, Python, CASA, L^AT_EX 2_ε, PHP, BASH, and UNIX-like operating systems.

LANGUAGES

- English (Native)
- Good Irish and French

PROFESSIONAL ORGANISATIONS

- Fellow of the Royal Astronomical Society
- Associate Member of the Institute of Physics

REFEREES	Prof. Graham Harper School of Physics Trinity College Dublin Dublin 2, Ireland phone: <i>+353 (0)1 896 3257</i> e-mail: <i>graham.harper@tcd.ie</i>	Prof. Peter Gallagher School of Physics Trinity College Dublin Dublin 2, Ireland phone: <i>+353 (0)1 896 1300</i> e-mail: <i>peter.gallagher@tcd.ie</i>	Prof. Hugh Hill International Space University 1 rue Jean-Dominique Cassini Strasbourg, France phone: <i>+33 (0)3 88 65 54 39</i> e-mail: <i>hill@isu.isunet.edu</i>
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