

Dr Jack O'Malley-James

CONTACT DETAILS	Carl Sagan Institute Cornell University 204 Space Sciences Building Ithaca, NY 14853, USA	<i>E-mail:</i> <i>www:</i>	j.omalley-james@cornell.edu www.jackomalleyjames.com
RESEARCH INTERESTS	<ul style="list-style-type: none">• Exoplanet habitability: biosignatures; climate modelling; habitable zone lifetimes; biosphere and ecosystem responses to stellar evolution and climate change.• The interactions of biospheres with planetary atmospheres.• Ultraviolet radiation and habitability.• The biosignatures of life on Earth-like planets nearing the end of their habitable lifetimes (PhD project, 2010-2014).		
EDUCATION	<p>University of St Andrews, St Andrews, UK PhD, <i>Astrophysics</i> (September 2010 - July 2014)</p> <ul style="list-style-type: none">• Thesis Topic: The Biosignatures of Diverse Microbial Life• Supervisors: Jane Greaves, Charles Cockell, John Raven• Area of Study: Astrobiology <p>University of St Andrews, St Andrews, UK MRes Environmental Biology (for mathematical scientists) (Nov 2009)</p> <ul style="list-style-type: none">• Postgraduate research degree with distinction.• Dissertation Topic: “The Potential for Oxygenic Photosynthesis in Binary Star Systems”. Supervisors: John Raven, Charles Cockell. <p>University of St Andrews, St Andrews, UK MPhys Theoretical Physics (Jun 2008)</p> <ul style="list-style-type: none">• Dissertation Topic: “Statistical Dynamics of Interacting Fish Populations”. Supervisor: Andrew Green.		
PROFESSIONAL EXPERIENCE	<p>Research Associate working with Lisa Kaltenegger to model exoplanet atmospheric photochemistry, surface radiation environments and remotely detectable biosignatures: Carl Sagan Institute, Cornell University, USA (May 2015 - Present).</p> <p>Research Associate funded to adapt PhD thesis into a popular science book: Dept. Physics & Astronomy, University of St Andrews, UK (July 2014 - December 2014).</p> <p>STFC funded PhD student, 3.5 years funding: Dept. Physics & Astronomy, University of St Andrews, UK (Sept 2010 to July 2014).</p> <p>Tutor & demonstrator, Astrophysics, physics, observatory training: University of St Andrews, UK (Sept 2010 to July 2014).</p> <p>Observer at the James Gregory Telescope (the UK’s largest operational optical telescope): University of St Andrews, UK (2012 to 2014).</p> <p>Astrobiology Society of Britain: Committee member (Jan 2013 to present).</p> <p>Member of scientific and local organising committees for the Emerging Researchers in Exoplanet Science Symposium, Ithaca, USA (2016).</p>		
PROFESSIONAL MEMBERSHIPS	Royal Astronomical Society Astrobiology Society of Britain		
TECHNICAL SKILLS	Detailed understanding of Linux-based operating systems and Microsoft Windows. Experienced with Office, L ^A T _E X, Fortran, Mathematica and Python.		

TEACHING
EXPERIENCE

I have taught in a range of environments, from small group tutorials to lectures, covering solar system astronomy, observational astronomy, stellar evolution, galactic astronomy, mechanics, and astrobiology. I have been responsible for coordinating teaching and course assessment/grading.

- Guest lecturer for Astronomy 101 course (Cornell University, 2015; 2016).
- Undergraduate research project supervisor: “Cosmic rays and habitability” (Cornell University, 2015-16).
- Cornell REU (Research Experiences for Undergraduates) program lecturer: Habitable zones workshop; The Search for Life in the Universe (Cornell University, 2016).
- 4th year undergraduate level radio telescope lab demonstrator (2013-2014).
- Undergraduate physics and astronomy tutor/demonstrator for the University of St Andrews Gateway Programme (2011-2014).
- Part of a two person team tasked with training and testing undergraduate students on the 25 cm and 40 cm Meade telescopes at the St Andrews Observatory (2011-2014).
- Undergraduate astronomy tutor (small groups) and lab demonstrator (University of St Andrews, 2010-2014). Lead tutor and tutorial coordinator, 2012-2014.

CONFERENCES
& MEETINGS

Contributed/Invited Talks

The Habitability of Highly UV-Irradiated Surfaces - *AbSciCon, Phoenix, April 2017.*

Temporal & Alternative Biosignatures - *EANA, Athens, September 2016.*

Life at the End of Worlds: The Future of Earth’s Biosignatures - *ERES II, Ithaca NY, June 2016.*

In Search of Future Earths - *AbSciCon, Chicago, June 2015.*

Swansong Biospheres: Refuges for Life and Novel Microbial Biospheres on Terrestrial Planets Near the End of their Habitable Lifetimes - *Astrobiology Society of Britain Conference (ASB5), Edinburgh, April 2013.*

Light and Life: Exotic Photosynthesis in Binary and Multiple Star Systems - *European Astrobiology Workshop (EANA 2012), Stockholm, October 2012.*

Light and Life: Exotic Photosynthesis in Binary and Multiple Star Systems - *16th Evolutionary Biology Meeting, Marseille, September 2012.*

The Last Puddle on Earth: Refuges for Life on a Dying Planet - *STFC Astrobiology Summer School, September 2011.*

Posters

UV Surface Environments on Habitable Worlds - *SCOL Annual Symposium, Simons Foundation, New York, May 2017.*

Biofluorescence as a Temporal Biosignature - *SCOL Annual Symposium, Simons Foundation, New York, May 2016.*

Mars as an Analogue for an End-Stage Habitable Planet - *ASB Life in the Cold meeting, Leeds, October 2013.*

Swansong Biospheres: Refuges for life and novel microbial biospheres on terrestrial planets near the end of their habitable lifetimes - *UK National Astronomy Meeting (NAM), St Andrews, July 2013.*

Swansong Biospheres: Refuges for life and novel microbial biospheres on terrestrial planets near the end of their habitable lifetimes - *IAUS 299, Victoria, June 2013.*

The Last Puddle on Earth: Refuges for life on a dying planet - *São Paulo Advanced School of Astrobiology (SPASA), São Paulo, December 2011.*

Exotic Photosynthesis in Binary Star Systems - *AbGradCon, Bozeman, MT, June 2011.*

Exotic Photosynthesis in Binary Star Systems - *UK National Astronomy Meeting (NAM), Llandudnu, April 2011.*

Other

Breakthrough Discuss, Stanford University, April 2017.

Emerging Researchers in Exoplanets, Penn State, May 2015.
UKCA Building Habitable Worlds Workshop, Edinburgh, February 2014.
UK Space Environments Conference, Aberdeen, June 2012.
STFC graduate course on Exoplanets and their host stars, Oxford, March 2012.

AWARDS

- Travel grant for European Astrobiology Network Association meeting, Athens 2016.
- Travel grant for ASB Life in the Cold Workshop, Leeds, 2013.
- *FAPESP* funded place at the São Paulo Advanced School of Astrobiology 2011
- Poster prize at NAM 2011, Llandudno 2011.

PRESS
COVERAGE

My work has been covered in a range of print publications, including the *New Scientist*, *Wired Magazine*, *National Geographic*, *Science et Vie*, and *A&G Magazine*. I have also given live and recorded interviews for the BBC (World Service, Radio 4, World News Channel) as well as for various international broadcasters. Press releases include:

- **Could Black Trees Blossom in a World With Two Suns?** for NAM 2011.
- **The Last Survivors at the End of the World** for NAM 2013.

OUTREACH

- Appeared in the NHK documentary ‘Cosmic Front (Journey to the Earth’s Future)’, March 2016.
- Science consultant for the BBC’s *Horizon*, *Human Universe* and *Stargazing Live* series.
- The Wellcome Trust’s Clover Project space-themed dinner event, London (April 2015). Invited to talk to game designers creating biologically realistic alien worlds.
- Project advisor for an International Baccalaureate astrobiology project (Lycée Paul-Claudel, Paris): “What would extraterrestrial life look like?”
- Public talk for the Kensington Celebration of Science event: “Understanding Science; the past, present and future of the earth and its people”, September 2013.
- Organiser and demonstrator for the Fife Science Festival (2011, 2012, 2013, 2014); a family science event held at the University of St Andrews.
- Outreach astronomer for observatory open nights in St Andrews. Including operating the two Meade telescopes and answering questions from the public.
- Primary school astronomy. Gave introductory talks about the night sky to various age groups using a mobile, inflatable planetarium.
- Popular science article: “Exotic Photosynthesis in Binary Star Systems” in ***l’Astrofilo***.