

Curriculum Vitae

PERSONAL INFORMATION

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Nationality: British

RESEARCH INTERESTS

My research is broadly concerned with understanding the evolution of the terrestrial planets and icy moons. I use techniques from different disciplines to address the key questions in planetary science that can only be answered with a cross-disciplinary approach. By studying the key processes that affect the evolution of different planetary bodies such as Venus, the Moon, Mars and Titan, my research addresses the majority of the recorded history of the Solar System.

EDUCATION

2002 – 2005	PhD	Geology: <i>Corona-related volcanism on Venus</i>	UCL
1997 – 2001	MSci	<i>Planetary Science (1st class honours)</i>	UCL

EMPLOYMENT

2013 – present	UKSA Advanced Research Fellow & Lecturer, Birkbeck, University of London <i>Surface-atmosphere exchange and the history of water on Mars.</i>
2011 – 2013	UKSA Aurora Research Fellow, UCL <i>Experimental and theoretical studies of Martian ice and hydrates.</i>
2011 – 2012	CEPSAR Visiting Research Fellow, Open University <i>Concepts for activities in the field for exploration (terrestrial analogue sites).</i>
2008 – 2011	STFC Aurora Research Fellow, UCL <i>Experimental and theoretical studies of Martian ice and hydrates.</i>
2005 – 2008	Post-doctoral research assistant, UCL <i>The properties of planetary forming materials and the evolution of the icy moons.</i>
2004 – 2005	Explainer (part-time), Natural History Museum, London Devised and presented learning and outreach strategies for families and school-groups in a hands-on environment. Permanent weekend post.

GRANTS/AWARDS

2014	£244k	PI	UKSA Aurora Standard Grant	3 Years	<i>Identification and Analysis of Mars Landing Sites: ExoMars 2018 and Beyond</i>
2012	£309k	PI	UKSA Aurora Research Fellowship	5 Years	<i>Surface-atmosphere exchange and the history of water on Mars</i>
2011	€200k	Co-I	ESA General Studies Program	10 Months	<i>Concepts for activities in the field for exploration (terrestrial analogue sites)</i>
2011	£85k	PI	UKSA Aurora Fellowship Extension	1 Year	<i>Experimental and theoretical studies of Martian ice and hydrates</i>
2010	£77k	Co-I	UKSA	3.5 Years	<i>HiSCI: A High Resolution Stereo Colour Imager for the 2016 Trace Gas Orbiter</i>
2008	£290k	PI	STFC Aurora Research Fellowship	3 Years	<i>Experimental and theoretical studies of Martian ice and hydrates</i>
2008	£2k	PI	RAS	10 weeks	<i>Characterisation of single crystal and polycrystal specimens of MgSO₄·11H₂O (meridianiite)</i>
2008	£5k	Co-PI	UCL Futures	1 Year	<i>Conservation of Images from the Regional Planetary Image Facility</i>
2007	£20k	Co-I	PPARC	6 months	<i>Venus Entry Probe mission - Definition of science case for surface imaging from small probes</i>

PROFESSIONAL ACTIVITIES

Responsibilities: Director, Centre for Planetary Sciences at UCL/Birkbeck (2010-2011)
Data Manager, UCL Regional Planetary Image Facility (2005-present)

Mission involvement: *ExoMars*, Pancam Science Team (2010 – present)
HiSCI on ExoMars Trace Gas Orbiter (2010 – 2012)

Mission proposals: *HyperCLUPI*, NASA Mars2020 Instrument Proposal (2014)
EnVision, ESA M-Class Mission Proposal (2010)
UK Penetrator Consortium, Regolith Working Group (2008 – 2009)
EVE Descent Camera, ESA Cosmic Vision Proposal (2007)

Reviewer for publications: *Icarus* (5), *EPSL* (3), *JGR* (2), *Geology* (1), *Geol. Soc. S.P.* (1) *J. Maps* (1), *Earth Moon Planets* (1), *USGS Mapping Series* (1)

Reviewer for grants: *UKSA* (6), *STFC* (3), *Royal Society* (2), *Geological Society* (1)

Affiliations: *RAS* (Fellow), *AGU* (Member), *Geol. Soc. London* (Fellow)

Other: Invited consultant for BGS on ESA Mars mapping project (2010)
Invited advisor on ESA Lunar South Pole mapping project (2010)
Invited member of IAU Nomenclature Task Group (2011 – present)

TEACHING

2017	BBK - <i>Volcanism in the Solar System</i>	Course Organiser and lecturer
2015	BBK - <i>Geology of the Solar System II</i>	Course Organiser and lecturer
2014	BBK - <i>Remote Sensing & Planetary Surfaces</i>	Course Organiser and lecturer
2005-12	UCL - <i>Earth & Planetary System Science</i>	Guest lecturer
2006	UCL - <i>Geology of Planetary Bodies</i>	Course Organiser and lecturer
2005-06	BBK - <i>Planetary Volcanism</i>	Guest lecturer
2005	UCL - <i>Advanced Topics in Planetary Science</i>	Guest lecturer
2004-05	UCL - <i>Geological Field Techniques</i>	Field Teaching Assistant

UNIVERSITY SERVICE

2012-present Centre for Planetary Sciences at UCL/Birkbeck, Board
2008-present UCL Earth Sciences, Technical Scheduling Forum
2010 + 2013 Birkbeck College, PhD Transfer Viva Examiner
2010-11 UCL Institute of Origins, Board
2007 UCL Earth Sciences, Exam Review Panel

STUDENT SUPERVISION

2013-present	Joel Davis	PhD	Principal Supervisor	
2013-present	Wil Poole	PhD	Co-Supervisor	
2013-present	Brian Kneller	PhD	Co-Supervisor	
2013-present	Huma Irfan	PhD	Co-Supervisor	
2013-2014	Nicholas Hounsom	MSc	Sole Supervisor	
2013-2014	Gaia Stucky de Quay	MSci	Sole Supervisor	(now <i>PhD</i> at Imperial)
2012-2013	Emma Fegan	MSc	Principal Supervisor	(now <i>PhD</i> at OU)
2012-2013	Jane MacArthur	MSc	Co-Supervisor	(now <i>PhD</i> at Leicester)
2007-2012	Ceri Middleton	PhD	Co-Supervisor	(now <i>PDRA</i> at ULB)
2010-11	Peter Fawdon	MSci	Sole Supervisor	(now <i>PhD</i> at OU)
2009-10	Stephen Fawcett	MSci	Sole Supervisor	(now <i>PhD</i> at Southampton)
2009	Maria Duffy	Intern	Sole Supervisor	(now <i>PhD</i> at OU)

WORKSHOPS/COMMITTEES

2014	<i>Fermor Meeting 2014: Comparative Planetology</i>	London, UK	(Organiser)
2013	<i>RAS Specialist Discussion Meeting: MSL</i>	London, UK	(Organiser)

2012	USGS Planetary Data Workshop	Flagstaff, AZ
2010	UKSA Aurora Advisory Committee	Swindon, UK (Invited Participant)
2010	4 th MSL Landing Site Workshop	Los Angeles, California
2009	STFC Habitability & Landing Sites Workshop	Milton Keynes, UK (Invited Rapporteur)
2009	High-g (hyper-velocity impacts) Workshop	Cambridge, UK
2009	Icy Satellites/Cassini Workshop	London, UK
2009	CRISM Users Workshop	Houston, Texas
2008	Science of Solar System Ices Workshop	Oxnard, California

INVITED TALKS

2014	Queen Mary, London	<i>Habitability of Mars and the ExoMars Landing Site</i>
2013	University of Edinburgh	<i>Understanding The Evolution of Water and Habitability on Mars</i>
2012	Royal Observatory	<i>Destination Mars</i>
2011	British Science Festival	<i>The Halstead Lecture – The Evolution of Water on Mars</i>
2011	RAS Discussion Meeting	<i>A Sedimentary Basin in Coprates Catena, Mars</i>
2010	Imperial College, London	<i>The Evolution of Water on Mars</i>
2009	University of Plymouth	<i>Ice and hydrated minerals on Mars</i>
2009	University of Manchester	<i>Ice and hydrated minerals on Mars</i>
2009	British Science Festival	<i>Exploring new sources of Water on Mars</i>
2009	University of Leicester	<i>Ice and hydrated minerals on Mars</i>
2007	Natural History Museum	<i>Exploring Titan</i>
2006	Royal Astronomical Society	<i>Does Titan erupt like Io?</i>

FIELD EXPERIENCE

2013	Iceland	Mars analogue and ExoMars PanCam simulation
2012	Marche, Italy	Geological mapping theory
2007	Hawaii, USA	Volcanic processes and planetary analogues
2005	Etna, Italy	Volcanic processes
2004-5	Assynt, Scotland	Geological mapping theory
2001	Cantabrians, Spain	Structural geology and mapping
2001	Ries, Germany	Impact cratering
1998	Vesuvius, Italy	Volcanic processes

TECHNICAL SKILLS

Computer Proficient in ArcGIS, ENVI/IDL, SOCETSET, ISIS, Microsoft Office, Adobe Illustrator and Photoshop, Windows and Mac OS. Competent in MATLAB, Linux/Unix OS, LabVIEW. Programming experience in HTML, PERL, MATLAB, KML.

Laboratory Experience with X-Ray Diffraction, Neutron Diffraction (at ISIS, various instruments), low temperature systems (cold room best practices and sample preparation), low and high pressure systems, laser profilometry, helium pycnometry, rotational viscometry, uniaxial and triaxial compression cells (Instron, up to 200 kN), rock coring and grinding equipment, SEM and optical microscope use, general workshop machining.

PUBLIC ENGAGEMENT

I am passionate about and have extensive experience of public engagement and outreach, both through UCL and in my spare time. I am a founding science team member of the MoonZoo citizen science research program, which has now had over 11 million user interactions. I have been an invited interviewee and advisor for several major television documentaries and newspaper articles (including BBC Wonders of the Solar System and Universe, The Sky at Night, National Geographic TV, The Guardian, New Scientist). I have given invited talks, including keynote lectures, at major outreach events and institutions such as the British Science Festival, UK Space Conference, Festival of Geology, the Natural History Museum, and Manchester MOSI. For three years I designed, organised and presented a University of London Summer Course, Destination Mars, for Key Stage 4 pupils. In 2009 I became a STEMNET ambassador, and have given many talks to school groups and amateur societies in London and the South East of the UK.