

Dr Stacey Habergham

Work

Astrophysics Research Institute
Liverpool John Moores University
IC2 Liverpool Science Park
146 Brownlow Hill
Liverpool
L3 5RF

Phone: 0151 231 2905

Email: S.M.Habergham@ljmu.ac.uk

Web: www.astro.ljmu.ac.uk/~smh

Twitter: @AstroHabs

Education

Ph.D. Astrophysics

Liverpool John Moores University (2009 - 2013)

“Using Supernovae as Tracers of Stellar Populations”

Analysing a statistically significant population of core-collapse supernovae in the local Universe in order to constrain the mass and metallicity of supernova progenitors, and to trace recent star formation within host galaxies. Specifically investigating triggered star formation within merging galaxies.

PGCE Secondary Science (M-level)

Liverpool Hope University (2008 - 2009)

MPhys Astrophysics (1st class)

University of Liverpool/Liverpool John Moores University (2004 - 2008)

“Developing an Observing Program for the National Schools Observatory”

Astronomy outreach project to utilise the National Schools Observatory based at LJMU. Developed a variable star observing program and all accompanying help files, work sheets and background information for use by secondary school pupils.

A Levels: Physics (B) History (B) Biology (C)

Queensbury School, Bradford, West Yorkshire (2002 - 2004)

GCSEs: 10 (9 A and 1 B)

Queensbury School, Bradford, West Yorkshire (1999 - 2002)

Personal

I am currently the manager of the National Schools’ Observatory educational project and an Ogden Trust Science Outreach Officer at Liverpool John Moores University. I am extremely hard working and have a passion for physics and astronomy which extends past what is expected of my job. I believe that sharing my love of astronomy with the wider community is paramount and have been engaged in outreach work, especially with young people, for over 10 years.

I am an excellent organiser, time-manager and problem-solver, skills which I have regularly displayed in my academic and outreach work. I have had many leadership roles from House Captain, Deputy Head Girl and Social Secretary in school and university, to training roles in employment, and as a Junior Officer in the Royal Naval Reserves. My current role involves managing a small team of staff and ensuring that the project fulfills the goals of the strategy.

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Publications

Statistical Studies of Supernova Environments

Anderson, James, **Habergham**, Galbany & Kuncarayakti, 2015, PASA, 32, 19

On the environments of Type Ia supernovae within host galaxies

Anderson, James, Förster, González-Gaitán, **Habergham**, Hamuy & Lyman, 2015, MNRAS, 448, 732

Environments of interacting transients: impostors and type II supernovae

Habergham, Anderson, James & Lyman, 2014, MNRAS, 441, 2230

Multi-wavelength Observations of the Enduring Type II supernovae 2005ip and 2006jd

Stritzinger et al. inc. **Habergham**, 2012, ApJ, 756, 173

A Central Excess of Stripped-Envelope Supernovae within Disturbed Galaxies

Habergham, James & Anderson, 2012, MNRAS, 424, 2841

Progenitor mass constraints for core-collapse supernovae from correlations with host galaxy star formation

Anderson, **Habergham**, James & Hamuy, 2012, MNRAS, 424, 1372

On the multiple supernova population of Arp 299: constraints on progenitor properties and host galaxy star formation characteristics.

Anderson, **Habergham** & James, 2011, MNRAS, 416, 567

Observational constraints on the progenitor metallicities of core-collapse supernovae.

Anderson, Covarrubias, James, Hamuy & **Habergham**, 2010, MNRAS, 407, 2660

Type Ibc Supernovae in Disturbed Galaxies: Evidence for a Top-heavy Initial Mass Function.

Habergham, Anderson & James, 2010, Astrophysical Journal, 717, 342

Selected Professional Presentations

Conference Talk: ‘*The National Schools’ Observatory*’

Royal Astronomical Society ‘AstroReach Meet’, London, England, 2016

Invited Review Talk: ‘*Exploring the Environments of Core-Collapse Supernovae*’

European Week of Astronomy and Space Science, IAC, La Laguna, Tenerife, 2015

Christmas Lecture: ‘*Exploring the Universe with Exploding Stars*’

Royal Astronomical Society Public Lecture series, London, England, 2014

Conference Talk: ‘*Using Supernovae as Tracers of Stellar Populations*’

ESO Conference on ‘The Deaths of Stars and the Lives of Galaxies’, Santiago, Chile, 2013

Conference Talk: ‘*The Ogden Trust and Physics Outreach*’

National Astronomy Meeting, St Andrews, Scotland, 2013

Conference Talk: ‘*Supernovae as a Probe of the Starburst Phenomenon*’

AAO Southern Cross Conference on ‘Supernovae and their Host Galaxies’, Sydney, Australia, 2011

Conference Talk: ‘*Evidence for a Varying IMF Using Core-Collapse Supernovae populations*’

RAS National Astronomy Meeting, Llandudno, Wales, 2011

Conference Talk: ‘*Type Ibc Supernovae in Disturbed Galaxies: Evidence for a Top-Heavy IMF*’

IAP workshop on ‘Progenitors and Environments of Stellar Explosions’, Paris, France, 2010

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Media

BBC Academy Expert Women Day (North): Selected for media training for the Expert Women Day. Involved training in the TV studio, radio studio and walking to camera, and a discussion about the industry.

Spaceport Observatory Exhibit: Wrote and inputted information on every object to appear on the interactive exhibit, into the database. Describing over 5,000 astronomical objects in language appropriate to the target audience (key stage 3 pupils).

Magazine article: 'Galaxy Mergers Make More Massive Stars' Astronomy Now both Online and in Press, 2010

Observing Experience and Technical Abilities

Selected Observing Experience

- Taught on the Undergraduate Field Trip to the Mons Telescope, Tenerife (2013-present)
- Co-Investigator (Co-I) and observer: 8 nights with ESO New Technology Telescope spectrograph, La Silla, Chile (October 2016)
- Principal-Investigator (PI): 6 night with Isaac Newton Telescope (INT) Intermediate Dispersion Spectrograph, La Palma (September 2016)
- PI: LT proposal to obtain H α follow-up of PTF type II supernovae, and monitoring of galaxies to detect supernova impostors.
- PI and observer: 6 nights with the William Herschel Telescope ISIS (spectroscopy), La Palma (April 2014)
- Co-I and observer: 6 nights with the INT Wide Field Camera, La Palma (January 2012)
- Co-I and observer: 6 nights with the INT Intermediate Dispersion Spectrograph, La Palma (November 2010)

Technical Abilities

Experienced in photometry and spectroscopy data reduction using Starlink packages

Capable programmer in Fortran and C-shell

Capable content developer in HTML and PHP with knowledge of Drupal 6 and 7

Teaching

2013-present: Tenerife Undergraduate Field Trip: *Field work for practical observing experience for the undergraduate students as part of a designated module.*

2012-present: Work Experience Week: *15-17 year olds on placement at the Astrophysics Research Institute for one week in the summer term. I was initially involved in organising and reviewing the schedule, taking the group on a short excursion, presenting workshops and leading ice-breakers, and ultimately supervising, and marking group projects. For the last 3 years I have been the principal organiser and leader of the week.*

2013: Undergraduate Tutorials: *Marking undergraduate tutorial work and teaching three tutorials a week over the course of a semester.*

2009-2012: Tutoring on the LJMU undergraduate foundation year course: Introduction to Astronomy

2009-2011: Tutoring on the LJMU astrophysics distance learning course: Exploring the Universe

2008-2009: PGCE in Secondary Science – completed NQT status with masters level credit; *requires 52 days placement in secondary schools, teaching key stage 3 and 4 science, and A-level physics.*

2007-2010: One-to-one tutoring of school pupils aged from 7-18 years, in English, maths, and science; including pupils with special educational needs.

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Selected Work Experience

National Schools' Observatory Manager (NSO) and Ogden Science Officer (September 2014 – present):

In my current role I continue to get the support of the Ogden Trust as a science outreach officer at the 25% level which allows me to carry out talks and workshops in local schools and organise regional events for the Trust. The rest of my time is dedicated to my role within the Astrophysics Research Institute at Liverpool John Moores University managing the NSO and the outreach programme. The NSO is a free online resource offering schools across the UK and Ireland access to the world's largest robotic telescope, and a range of activities and information to support teaching Science, Technology, Engineering and Maths, in order to inspire the next generation of skilled workers. I manage a small team of staff, a budget of ~£300k, the website and am responsible for the project meeting its strategic aims and answering to an external advisory board. I write content for the website, from newswieces to teaching resources and 'astronomy textbook' material; organise teacher training events and respond to enquiries through the website. I have helped to design a new website for the project and draft the next 5 years strategy. Within the department I am also dedicated to diversity and equality and on the committee steering our application to the IoP Juno project.

Ogden Science Officer and Research Assistant (March 2013 - September 2014):

This role saw 50% of my time spent on research, mainly on the role of host galaxy environments in defining supernova explosions, and 50% to be spent on outreach. This outreach involves direct contact with schools and pupils writing and delivering workshops and presentations to ages from 7-18, the development of online resources for schools and the delivery of teacher CPD courses.

Ogden Trust Teaching Fellow (2009-2013):

The Ogden Trust are a charity whose aim is to 'make physics matter'. Primarily the trust works with partnership schools across the country to promote physics to pupils. My role within the charity was as a Teaching Fellow, working with a group of local schools, and the University of Liverpool's Physics Outreach Group. My duties in this role included giving research talks, running astronomy days, giving Christmas lectures, aiding workshops and organising regional events.

Planetarium Operator (2007-2010):

At the World Museum Liverpool, engaging the wider public in astronomy through several shows including those aimed at young pre-school children, shows introducing the night sky and in-depth shows on the solar system. I worked as the weekend planetarium operator, a completely independent role which required maintaining the equipment, dealing with the public, running the shows and answering questions.

Education Liaison Liverpool Ambassador (2006-2008):

For the University of Liverpool. This involved giving tours to prospective students on university open days, handling calls during A-level results week, representing the university during careers fairs at local schools, and at UCAS fairs across the UK. My role also involved giving presentations to A-level pupils on what to expect from university life. This position required the ability to communicate effectively to schools, students and their parents, and the responsibility of representing the university at key recruitment fairs.

Acting Sub-Lieutenant, Royal Naval Reserves (2004-2007):

From joining in 2004 I was promoted to a junior officer having passed the Admiralty Interview Board process, in which I displayed the necessary leadership, teamwork, command and management qualities expected of a Royal Naval officer. I left having sustained an injury which made the physical requirements of the role impossible.

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Outreach

I have previously engaged with boys brigades and youth clubs, regularly give talks at amateur astronomy societies across the UK, and am a registered STEM Ambassador, showcased on the MerseySTEM website.

I have also led weekend masterclasses for gifted year 5 and 6 pupils for the charity Tomorrows Achievers, based around a 'Mission to Mars' and the Apollo missions, and aim to provide the pupils with a challenging, cross-curricular and fun set of activities spanning a whole school day.

Other Interests

I am a member of the Royal Astronomical Society (RAS), Institute of Physics, and a STEM Ambassador. In 2014 I was elected to the Council of the RAS to serve a 3 year term. This allows me to help direct and manage the society and make decisions based on the charities objectives and with the best interests of the ~3500 members in mind. On council I also hold the legal role of being a Trustee for the charity. In 2016-17 I also hold the role of Diversity Champion for the RAS, and began chairing the RAS Committee on Diversity in Astronomy and Geophysics.

I have an avid interest in sport, predominantly team sports such as football, cricket and American football, and enjoy keeping active, playing badminton and being out in nature often going walking.

I enjoy crafts, most notably cross-stitch and drawing, and love to garden, growing my own fruit and vegetables. I enjoy DIY and making improvements on our house, and enjoy photography, especially nature.

I have achieved my bronze and silver Duke of Edinburgh awards, my bronze and silver Crest awards, and am first aid trained.

Referees

Mr Tim Simmons
The Ogden Trust
Hughes Hall,
Cambridge,
Cambridgeshire
CB1 2EW
Phone: 01223 761843
Email: office@ogdentrust.com

Prof. Andy Newsam
Astrophysics Research Institute
Liverpool John Moores University
IC2, Liverpool Science Park
146 Brownlow Hill, Liverpool
L3 5RF
Phone: 0151 231 2909
Email: A.M.Newsam@ljmu.ac.uk