
School of Physics and Astronomy
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Nationality: UK

Date of birth: 28th January 1980

Research interests

- Physical processes responsible for galaxy formation and evolution, currently focussing on:
 - Post-starburst galaxies and post-mergers
 - Gas supplies, exhaustion and expulsion
 - The galaxy - AGN connection
- I take a multidisciplinary approach, combining:
 - Development of new statistical techniques for analysing large datasets
 - Targeted multiwavelength follow-up to constrain key physical parameters
 - Post-processing of simulations to help interpret observations
 - Studies of gas around galaxies using quasar absorption line systems

Research Experience

- Reader, School of Physics and Astronomy, University of St Andrews, Sep. 2015 - current
Module coordinator and lecturer for 3rd/4th year course: “Extragalactic Astronomy”.
P.I. of €1.4 million ERC starting grant “SEDmorph”.
Chair of School Equality and Diversity committee, incl. successful Juno champion application.
- Lecturer, School of Physics and Astronomy, University of St Andrews, 2012 - Sep. 2015
- Scottish Universities Physics Alliance (SUPA) Advanced Fellow
School of Physics and Astronomy, University of St Andrews, Jan. 2012 - Oct 2012
- Research Fellow
Institute for Astronomy, University of Edinburgh, Oct. 2010 - Jan. 2012
I extended my PCA spectral analysis for high redshift multi-wavelength photometric datasets. Applying this to the UKIDSS UDS I identified a large number of $z \sim 1-2$ post-starburst galaxies.
- Marie Curie Intra-European Fellow
Institut d’astrophysique de Paris, Oct. 2008 - Oct 2010
I quantified the variable dust attenuation laws of local galaxies, measured a delay in the starburst-AGN connection, and made the first observational constraint on the build up of the red sequence through gas rich mergers at $z \sim 0.7$. I developed new methods to post-process galaxy merger simulations, to enable direct comparison with observations.
- Post-Doctoral Research Fellow, MAGPOP EU Research Training Network
Max-Planck Institute for Astrophysics, Oct. 2005 – 2008
I developed a new diagnostic of the recent star formation histories (SFH) of galaxies from optical spectra. I found that AGN were more common in galaxies with bursty recent SFHs. I found that the ionising effect of QSOs extends far into the intergalactic medium.

Education

- Ph.D. in Astrophysics, Institute of Astronomy, University of Cambridge, UK, 2002 – 2005.
(Supervisor: Prof. Paul Hewett and Prof. Ofer Lahav)
My thesis, *Galaxies in redshift surveys - spatial distributions and interstellar dust*, investigated the nature of relative biasing between different types of galaxies in the 2dFGRS, presented the first detection of significant dust reddening and depletions in a population of QSO absorption line systems, and developed a new technique to remove OH sky line residuals from SDSS spectra.
- MPhys 1st Class Honours, Institute for Astronomy, University of Edinburgh, Jun 2002.
Thesis: *Large Scale Structure in the 2dF Galaxy Redshift Survey* (Supervisor: Prof. J. Peacock)

Selected grants as lead investigator

- *The origins of galaxy bimodality*: ERC starting grant SEDmorph, 2012-2017, €1.4million
- Observatoire de Lyon, visiting researcher grant, May-June 2013 €2800
- Australian Astronomical Observatory Distinguished Visitor Grant, Nov 2012, AUS\$3000
- *The growth of galaxies*: Marie Curie European Re-integration Grant, 2011-2013, €45k towards PhD student salary and travel costs
- *Unveiling galaxy assembly from next generation photometry*: Marie Curie Intra-European Fellowship, salary and research costs, 2008-2010

Recent teaching and graduate student supervision

- Supervision of PhDs: Joao Ferreira (2011-2017), Milena Pawlik (2012-2016), Layth Tajuldeen (2014-)
- Co-supervisor of PhDs: Joshua Argyle (2013-2017), Tim Hewlett (2014-)
- Supervision of MPhys theses: Elizabeth Cooke (2012), Toby Mitchell (2016), Amy Rankine (2017), Beth Thompson (2017)
- Supervision of summer student research projects (Patrick Olden 2012, Ben Morton 2014, Mattis Magg 2015, Beth Thompson 2016, Melanie Schellenberg 2016)
- Lund Graduate Lecture Series: Stellar populations, March 2012
- Course organiser and lecturer 3rd/4th year Extragalactic Astrophysics, University of St Andrews, 2011/12-
- Lecturer 2nd year Chemical Evolution, University of St Andrews, 2012/13-2013/14

Selected recent conference talks, seminars and workshops

- Invited talk on “Galaxy formation and evolution from IFU surveys”, Southern Cross 2017: Surveying the Cosmos, Sydney, June 2017
- Cambridge Astrophysics Seminar: “Galaxy bimodality and post-starburst galaxies”, Mar 2016
- Invited talk on “Observing Simulations”, Modelling galaxies through cosmic time, Cambridge, Sep 2015
- Invited talk on “Galaxy bimodality and post-starburst galaxies”, In the footsteps of galaxies, Soverato, Italy, Sep 2015
- ESO/MPA/MPE/USM joint colloquium: “Searching for the origins of galaxy bimodality”, Nov 2014
- Leiden Observatory Colloquium: “The evolution of Starburst galaxies”, Jan 2013
- Invited talk on the “AGN host galaxy co-evolution”: The Triggering Mechanisms for Active Galactic Nuclei, Leiden Lorentz Centre, NL, July 2013
- Invited review on “Properties of AGN host galaxies”: EWASS, Turku, Finland, July 2013
- Invited review on dust attenuation: ‘Calibration of Star formation rate measurements’, Beijing IAU, 2012
- Invited review on SED fitting: ‘Very Wide Field Surveys in the Light of Astro2010’, Baltimore, 2011

Conference organisation

- SOC member: Mapping the Transformation of Galaxies Across Time and Space, Catalina Island, 2016; A 3D View on Galaxy Evolution: from Statistics to Physics, MPA, 2015; Deconstructing massive galaxy evolution, EWASS 2015; National Astronomy Meeting, Portsmouth, 2014; National Astronomy Meeting, St Andrews, 2013; “Calibration of Star Formation Rate Measurements”, IAU, Beijing, 2012
- SOC co-chair, “The Gas, Stars and Black Hole Ecosystem”, Lorentz Center, Leiden, July 2012

National and international service

- UK STFC Astronomy Grants Panel member, 2016-
- Chair of LSST:UK selection committee, 2016-
- UK STFC Ernest Rutherford Fellowship panel member, 2015
- Proposal review for STFC (UK funding agency), NWO (Dutch funding agency), Subaru Telescope, CFHT

Selected public outreach activities

- Introduction to astrophysics talk: Dundee Armitstead lectures, Edinburgh International Women’s Club, ROE Winter Talk Series, Royal College of Physicians Edinburgh, Dundee Probus Club
- Galaxy collisions talk: ROE Winter Talk Series, Dundee Observatory