

Department of Physics  
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## RESEARCH INTERESTS

Unusual transients; rapidly evolving transients; superluminous supernovae; supernova physics; time-domain astronomy; massive stars; host galaxy properties; photometric classification techniques; next-generation surveys.

## EXPERTISE

### Data Reduction & Analysis:

**Imaging:** Data reduction and processing of optical, UV and infrared data. Includes data taken with HST (ACS,WFC3), VLT (FORIS2), WHT (ACAM), NTT (EFOSC, SOFI).

**Spectroscopy:** Experience in the reduction of optical spectra, in particular spectra obtained with WHT (ACAM, ISIS), VLT (XSHOOTER), NTT (EFOSC).

### Computing:

**Extensive experience:** Python, IRAF, ds9, SExtractor, Esoreflex, L<sup>A</sup>T<sub>E</sub>X, Linux/UNIX, Mac OS.

**Basic familiarity:** IDL, SQL, STARLINK, C.

## ACADEMIC APPOINTMENTS

2017–Present **Postdoctoral Research Assistant**, Department of Physics, University of Southampton, UK.

## EDUCATION

2013–2017 **PhD** in Physics, University of Warwick, UK.  
Thesis title: *On the Host Galaxies of Superluminous Supernovae*  
Supervisor: Prof. Andrew Levan

2009–2013 **MPhys** in Physics and Astronomy, University of Sheffield, UK. *1st Class Hons*  
Research project: *Anatomy of a Young Stellar Cluster, R136*  
Supervisor: Prof. Paul Crowther

## ORGANISATIONAL EXPERIENCE

- 2018 - 2019 Chair of Scientific Organising Committee for EWASS 2019 Specialist Session ‘The Supernova Continuum: Filling in the Transient Gaps’
- 2017 - Present Postdoctoral Representative on the Physics Equality, Diversity and Inclusion Committee, University of Southampton, UK.
- 2017 - Present Committee member of the Women’s Physics Network, University of Southampton, UK.
- 2017 - Present Seminar organiser for Southampton Astronomy group.

## CONFERENCES AND TALKS

- July 2018 “Superluminous Supernovae from the Dark Energy Survey.” Contributed talk at *Transients in New Surveys: the Undiscovered Country*, Lorentz Center, Leiden, Netherlands.
- Dec 2017 “The Superluminous Supernovae in the Dark Energy Survey.” Invited talk at ESO, Santiago, Chile.
- May 2017 “SLSNe within the Dark Energy Survey.” Contributed talk at *Superluminous Supernovae in the Next Decade* MIAPP workshop, Garsching, Germany.
- Sept 2016 “The Host Galaxies of Superluminous Supernovae, as seen by HST.” Contributed talk at *Supernovae: The Outliers* MIAPP topical workshop, Garsching, Germany.
- May 2016 “A HST Perspective of Superluminous Supernovae Host Galaxies.” Contributed talk at *The Mysterious Connection Between Superluminous Supernovae and Gamma Ray Bursts* workshop at STSCI, Baltimore, USA.
- Aug 2015 “Hunting for the faintest hosts of the brightest explosions: Superluminous supernova hosts with HST.” Contributed talk at *Stellar Explosions in an Ever Changing Environment* Focus Meeting at IAU General Assembly XXIX, Honolulu, USA.
- June 2014 “Hosts of Superluminous Supernovae - A HST View.” Contributed talk at *Massive Star Evolution & the Diversity of Supernovae*, parallel session at National Astronomy Meeting, Portsmouth, UK.
- Mar 2014 “Hosts of the Most Luminous Supernovae.” Contributed talk at *Supernova Near and Far*, Royal Astronomical Society Specialist Meeting, London, UK.

## TEACHING & ADVISORY EXPERIENCE

- 2018 *Project Supervisor*, University of Southampton, UK.  
Supervised an eight-week summer project with undergraduate student A. Knight, analysing the host galaxies of supernovae in the Dark Energy Survey. Results to be published within Smith et al. *in prep*.
- 2018 *Teaching Assistant*, University of Southampton, UK.  
Supervised and assessed the work of 2nd year physics undergraduates in for an observing trip in Tenerife.
- 2013 - 2016 *Laboratory demonstrator*, University of Warwick, UK.  
Supervision and assessor of experiments undertaken by 2nd year students in the Physics laboratory.

## OUTREACH & PUBLIC ENGAGEMENT

- 2018 *Soapbox Science Presenter*, Brighton, UK.  
Presented my research to members of the public as part of the Soapbox Science festival.
- 2018 *Stargazing Live Talk*, Department of Physics, University of Southampton, UK.  
Presented a public lecture on the ‘Physics of Supernovae’, as part of the Universities Stargazing Live Evening.
- 2016 *Coventry LACES Event*, Department of Physics, University of Warwick, UK.  
Organised and presented astronomy orientated activities for children involved with the Coventry LACES scheme.
- 2014 - 2016 *Planetarium Presenter*, Department of Physics, University of Warwick, UK.  
Presenting planetarium shows in various schools around Warwickshire.

## OBSERVING EXPERIENCE

### Successful proposals at PI:

- 2017 Awarded 3 nights on NTT for photometric and spectroscopic observations of SN Ia-CSM host galaxies (results to be published within Cartier *et al. in prep*)
- 2016 Awarded 1 hour of spectroscopic observations using ACAM on WHT of the AGN host galaxy of unusual nuclear transient.
- 2016 Awarded 5 hours of spectroscopic observations using XShooter on VLT to study one of the faintest transient host galaxies to ascertain it's metallicity and likely progenitor type.

**Visitor Mode Experience:**

- 2017 11 nights observing with NTT (EFOSC & SOFI) for ePESSTO observing run
- 2017 3 nights using EFOSC on NTT for photometric and spectroscopic observations of SN-Ia CSM host galaxies
- 2015 2 nights using ACAM on WHT to obtain photometric observations of the host galaxies of long gamma ray bursts.

**COLLABORATIONS & MEMBERSHIPS**

- Dark Energy Survey (DES)
- (extended) Public ESO Spectroscopic Survey for Transient Objects (ePESSTO)
- Royal Astronomical Society (Fellow).

**AWARDS**

- 2017 Vice-Chancellors award for Equality, Diversity and Inclusion  
Awarded to the Women's Physics Network Committee