

Contact

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Professional experience

- 14/10/2019 - present **DARK Research Fellow**
Dark Cosmology Centre, Niels Bohr Institute, University of Copenhagen, Denmark
Supervisors: Jens Hjorth, Christa Gall
Research in transient astronomy, working with various surveys, primary focus on Young Supernova Experiment transients
- 17/02/2017 - 30/09/2019 **Postdoctoral Researcher**
Department of Physics, University of Southampton, UK
Supervisor: Mark Sullivan
Research in exotic transients, working with data from various surveys (see Research Collaborations). Focus on Superluminous Supernovae

Education

- 30/09/2013 - 09/10/2017 **PhD in Physics**, University of Warwick, UK
Title: *On the Host Galaxies of Superluminous Supernovae*
Supervisor: Prof. Andrew Levan
Research in transient host galaxies, working with photometric data to determine host properties
- 28/09/2009 - 19/07/2013 **MPhys in Physics and Astronomy**, University of Sheffield, UK
Masters Research Project: *Anatomy of a Young Stellar Cluster*
Supervisor: Prof. Paul Crowther
Research project on the photometric properties of massive stars in the young cluster; R136

Research collaborations

- 14/10/2019 - present **Young Supernova Experiment (YSE)**
Coordinator for survey observations with Nordic Optical Telescope. Contributed Publications: Jones et al. 2020 in prep, Auchettl et al. 2020 in prep, Angus et al. 2020 in prep
- 18/02/2017 - present **extended Public ESO Spectroscopic Survey for Transient Objects (ePESSSTO/ePESSTO+)**
Member of observing and data reduction teams for the survey. Head of the Superluminous Supernova working group (2019-2020). Contributed Publications: Anderson et al. 2018
- 18/02/2017 - present **Dark Energy Survey (DES)**
Member of Supernova working group in the survey. Contributed Publications: Angus et al. 2019, Smith et al. 2018
- 06/12/2018 - 30/06/2019 **Fast and Dark Side of Transients (FDST)**
Member of observing and data reduction teams for the survey.

Invited talks

- 23/11/2020 **Oskar Klein Centre, University of Stockholm, Sweden**
Group Seminar
Title: "Exotic Transients in the Young Supernova Experiment"

- 08/05/2019 **University of Warwick, UK**
Group Seminar
Title: “The diversity of superluminous supernovae from the Dark Energy Survey”
- 23/01/2019 **University of Pittsburgh, US**
The future of SN host galaxy studies (*invitation only workshop*)
Title: “Superluminous Supernova Hosts”
- 19/12/2017 **ESO Santiago, Chile**
Group Seminar
“Superluminous supernovae from the Dark Energy Survey”

Contributed talks

- 17/09/2019 **The extragalactic explosive Universe: the new era of transient surveys ESO Garsching, Germany**
Title: “The diversity of superluminous supernovae from the Dark Energy Survey”
- 10/07/2018 **Transients in New Surveys: the Undiscovered Country, Lorentz Center, Leiden, Netherlands.**
Title: “Superluminous Supernovae from the Dark Energy Survey.”
- 10/05/2017 **Superluminous Supernovae in the Next Decade, MIAPP workshop, Garsching, Germany.**
Title: “Superluminous supernovae from the Dark Energy Survey”
- 15/09/2016 **Supernovae: The Outliers, MIAPP topical workshop, Garsching, Germany.**
Title: “The host galaxies of superluminous supernovae, as seen by HST”
- 24/05/2016 **The Mysterious Connection Between Superluminous Supernovae and Gamma Ray Bursts, STSCI, Baltimore, USA.**
Title: “A HST Perspective of Superluminous Supernovae Host Galaxies”
- 11/08/2015 **Stellar Explosions in an Ever Changing Environment, Focus Meeting at IAU General Assembly XXIX, Honolulu, USA.**
Title: “Hunting for the faintest hosts of the brightest explosions: Superluminous supernova hosts with HST”
- 24/06/2014 **Massive Star Evolution & the Diversity of Supernovae, parallel session at National Astronomy Meeting, Portsmouth, UK.**
Title: “Hosts of Superluminous Supernovae - A HST View”
- 14/03/2014 **Supernova Near and Far, Royal Astronomical Society Specialist Meeting, London, UK.**
Title: “Hosts of the Most Luminous Supernovae”

Management experience

- Sept 2018 - Present **Head of extended Public ESO Spectroscopic Survey for Transient Objects (ePESSTO+) working group: “Superluminous Supernovae”**
Responsibilities: coordinating data collection, organising and planning publications/ group strategies for data release

International conference organisation

- Jun 2019 **European Week of Astronomy and Space Science 2019, Lyon, France.**
Session: “The Supernova Continuum: Filling in the Transient Gaps”
Scientific organiser and session chair
- Jul 2019 **National Astronomy Meeting 2019, Lancaster, UK.**
Session: “Transients in the wide-field sky survey era”
Co-organiser and session chair

Observing experience

Time granted as PI:

2020-2022	NOT - ALFOSC	Title: "The Young Supernova Experiment"	Large programme, 25 nights over 2 years
2020	Swift	Title: "The rapid transient 10HYSEjyo"	9000s ToO
2019-2020	ESO VLT - XShooter	Title: "Things that go pre-bump in the night: understanding early bumps in superluminous supernovae"	7 hours ToO (x2), awarded time in P105 and P106.
2020	Gemini - GMOS	Title: "The unusual nuclear transient AT2020neh"	4.5 hours DDT
2020	NOT - ALFOSC	Title: "The YSE way to find Rapid Transients"	15 hours ToO
2019-2020	NOT - ALFOSC	Titles: "Further classification and follow-up of YSE transients" "Classification/monitoring of YSE transients" "Continued classification of transients from the Young Supernova Experiment" "Classification of transients from the Young Supernova Experiment"	Fast track proposals 4x4 hours service mode
2017	ESO NTT - EFOSC	Title: "Disentangling the nature of Type Ia-CSM supernovae through their host galaxies"	3 nights visitor mode
2016	WHT - ACAM	Title: "Understanding the exotic transient CSS100217"	1 hour DDT
2016	ESO VLT - XShooter	Title: "Probing the extreme host of an exceptional supernova"	5 hours DDT

On-site experience:

2017 - 2019	ESO NTT - EFOSC & SOFI	2 observing runs for ePESSTO collaboration, 1 visitor mode run for PI proposal (host galaxies of Ia-CSM supernovae)	24 nights
2018	Teide Observatory - IAC-80, TCS, Mons	Teaching field trip for 2nd year physics undergraduates from practical astronomy module	5 nights
2017	ESO VLT - XShooter	XShooter observations of SLSN host galaxies	3 nights
2015	WHT - ACAM	ACAM observations of GRB host galaxies	2 nights

Technical Expertise:

Data Reduction & Analysis:

Imaging: Data reduction and processing of optical, UV and infrared data. Includes data taken with HST (ACS, WFC3), VLT (FOR2), 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, LATEX, Linux/UNIX, Mac OS.

Basic familiarity: IDL, SQL, STARLINK, C

Outreach

- 2019 **Think Space Lecture**, Royal Museums Greenwich, London, UK.
Presented public lecture titled "How many ways can you make a star explode?"
- 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**, University of Southampton, UK.
Presented a public lecture on the 'Physics of Supernovae' as part of broader public engagement event
- 2016 **Coventry LACES Event**, University of Warwick, UK.
Organised and presented astronomy orientated activities for children involved with the Coventry LACES scheme
- 2014 - 2016 **Planetarium Presenter**, University of Warwick, UK.
Presenting planetarium shows to wide range of school pupils (aged between 5-16)

Awards

- 2019 DARK Research Fellowship at Niels Bohr Institute, University of Copenhagen
- 2017 Vice-Chancellors award for Equality, Diversity and Inclusion, at University of Southampton

Teaching, supervision and mentoring

- Feb - August 2020 **Bachelors degree in physics - final project (University of Copenhagen):**
Student: Kristina Veng Johanson
Main supervisor
- June - August 2018 **Masters degree in physics - summer project (University of Southampton):**
Student: Amy Knight, *Main supervisor*
- Mar 2018 **Bachelors degree in physics - 2nd year research projects (University of Southampton)**
12 BSc students, *Co-supervisor*
- Sep 2013 - Mar 2016 **Bachelors degree in physics - 1st year laboratory (University of Warwick):**
Laboratory demonstrator

Peer review service

- 2019 Scientific peer review for science cases in STFC Consolidated Grant proposals
Proposals reviewed: 2
- 2018 - present Scientific peer review for Liverpool Telescope Proposals
Proposals reviewed: 6
- 2018 - present Scientific peer review for Hubble Space Telescope Directors Discretionary Time proposals
Proposals reviewed: 2

Publications

First Author:

- **Angus, C. R. et al.**, "Superluminous Supernovae in the Dark Energy Survey", MNRAS, 487, 2215 (2019).
- **Angus, C. R. et al.**, "A Hubble Space Telescope Survey of the Host Galaxies of Superluminous Supernovae", MNRAS, 458, 84 (2016).

Second/Third Author:

- Frohmaier, C. D., **Angus, C.R.** et al., “*From core collapse to superluminous: The rates of massive stellar explosions from the Palomar Transient Factory*”, arXiv:2010.15270, accepted for publication in MNRAS (2020).
- Insera, C., Sullivan, M., **Angus, C. R.** et al., “*First Hubble diagram and cosmological constraints using superluminous supernovae*”, arXiv: 2004.12218, submitted to MNRAS (2020).

Select fourth or later author articles in refereed journals:

- Jones, D. et al. (including **Angus, C. R.**), “*The Young Supernova Experiment: Survey Goals, Overview, and Operations*”, arXiv: 2010.09724, accepted for publication to ApJ (2020).
- Pursiainen, M. et al. (including **Angus, C. R.**), “*The mystery of photometric twins DES17X1boj and DES16E2bjy*”, MNRAS, 494, 5576 (2020).
- Wiseman, P. et al. (including **Angus, C. R.**), “*Supernova host galaxies in the dark energy survey: I. Deep coadds, photometry, and stellar masses*”, MNRAS, 495, 4040 (2020).
- Vincenzi, M. et al. (including **Angus, C. R.**), “*Spectrophotometric templates for core-collapse supernovae and their application in simulations of time-domain surveys*”, MNRAS, 489, 5802 (2019).
- Chrimes, A. A et al. (including **Angus, C. R.**), “*Investigating a population of infrared-bright gamma-ray burst host galaxies*”, MNRAS, 478, 2 (2018).
- Anderson, J. P et al. (including **Angus, C. R.**), “*A nearby superluminous supernova with a long pre-maximum ‘plateau’ and strong CII features*”, A&A, 620, A67 (2018)
- Insera, C. et al. (including **Angus, C. R.**), “*A Statistical Approach to Identify Superluminous Supernovae and Probe Their Diversity*”, ApJ, 854, 175 (2018).
- Smith, M. et al. (including **Angus, C. R.**), “*Studying the Ultraviolet Spectrum of the First Spectroscopically Confirmed Supernova at Redshift Two*”, ApJ, 854, 37 (2018).
- Smartt, S. J. et al. (including **Angus, C. R.**), “*A kilonova as the electromagnetic counterpart to a gravitational-wave source*”, Nature, 551, 75 (2017).
- Abbott, B.P et al. (including **Angus, C. R.**), “*Multi-messenger Observations of a Binary Neutron Star Merger*”, ApJ, 848, 12 (2017).
- Lyman, J. D. et al. (including **Angus, C. R.**), “*The host galaxies and explosion sites of long-duration gamma ray bursts: Hubble Space Telescope near-infrared imaging*”, MNRAS, 467, 1795 (2017).
- Lyman, J. D. et al. (including **Angus, C. R.**), “*Hubble Space Telescope observations of the host galaxies and environments of calcium-rich supernovae*”, MNRAS, 458, 1768 (2016).
- Crowther, P. A. et al. (including **Angus, C. R.**), “*The R136 star cluster dissected with Hubble Space Telescope STIS. I. Far-ultraviolet spectroscopic census and the origin of He II λ 1640 in young star clusters*”, MNRAS, 458, 624 (2016).