

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, leading work on young and unusual transients in the Young Supernova Experiment
- 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

- Oct 2019 - present **Young Supernova Experiment (YSE)**
- Lead of 'Young transients' working group
 - PI of spectroscopic followup with Nordic Optical Telescope, contributing >60% of all YSE spectroscopic observations
 - Selected publications: *Angus et al. 2021, Terreran et al. 2021, Jones et al. 2020*
- Feb 2017 - present **extended Public ESO Spectroscopic Survey for Transient Objects (ePESSTO/ePESSTO+)**
- Head of the Superluminous Supernova working group (2019-2020).
 - Extensive observing and data reduction experience with supervision.
 - Selected publications: *Anderson et al. 2018*
- Feb 2017 - present **Dark Energy Survey (DES)**
- Lead of Superluminous Supernova research within the survey
 - Selected publications: *Angus et al. 2019, Smith et al. 2018*
- Oct 2020 - present **Mirror-slicer Array for Astronomical Transients (MAAT)**
- Member of Cosmology and Transients working group
 - Member of the Superluminous Supernova team, advising on followup strategies
- Feb 2021 - present **The Vera C. Rubin Observatory Legacy Survey of Space and Time (LSST)**
- Member of the Transients and Variable Stars (TVS) group

06/12/2018 - **Fast and Dark Side of Transients (FDST)**
30/06/2019

- Core member of observing and data reduction teams

MANAGEMENT EXPERIENCE

Mar 2021 - Present **Head of the ‘Young Transient’ working group in the Young Supernova Experiment**
Designed, optimised and implemented the methodology used for real-time identification of young and rising transients in the survey data. Organisation of the working group and coordinator for targeted followup of interesting targets (leading a team of 9 people).

Nov 2019 - Present **Coordinator for European spectroscopic followup programmes in the Young Supernova Experiment Survey**
Ensure continuous access to European spectroscopic resources for the survey. Introduced an easy to use pipeline for obtaining, reducing and classifying all spectra from the Nordic Optical Telescope. Real-time coordinator of followup responsibilities (leading a team of 13 people).

Sept 2018 - Sept 2020 **Head of extended Public ESO Spectroscopic Survey for Transient Objects (ePESSTO+) working group: “Superluminous Supernovae”**
Coordinated data collection, organised and planned publications and group strategies for data release.

EQUITY, DIVERSITY AND INCLUSION

April 2022 - Present **DARK Equality, Diversity & Inclusion Efforts**
Developing and implementing a Code of Conduct and Core Working Hours policy.

Dec 2021 - Present **DARK Mental Health Committee**
Postdoctoral representative. Arranged the internal mentoring scheme in the group, organise talks and events to increase and promote mental wellbeing in the workplace

Feb 2017 - Sept 2019 **The Southampton Women’s Physics Network**
Co-chair of the network. Organised talks and outreach events to increase awareness and provide female role models working in STEM.

Jun 2018 - Sept 2019 **The Southampton Physics Equality, Diversity and Inclusion Committee**
Women’s Physics representative and Postdoctoral representative. Worked towards the departments on Athena Swann Silver Award.

TEACHING AND SUPERVISION

Feb 2022 - Present **Masters degree in physics - research project (University of Copenhagen):**
Role: co-supervisor. Student: M. Skafsgaard

- Co-supervisor for Masters research project, guide the student’s research and will co-assess the final thesis.

Feb 2022 - Present **Postdoctoral degree in physics - (University of Copenhagen):**
Role: co-supervisor. Students: D. Fariás

- Provide regular scientific advise and guidance on PhD research projects

Sept 2020 - Present **ECTS course - The Young Supernova Experiment (University of Copenhagen):**
Role: Course module creator and teacher

- ECTS course for postgraduate students on the practicalities of modern surveys. Developed, designed and delivered the course. Students are taught how modern surveys work, how to identify transients within the data and learn practically how to conduct and reduce observations with the Nordic Optical Telescope.

- Sept - Nov 2020 **Bachelors degree in physics - Astronomical Data Processing Course (University of Copenhagen):**
 Role: Co-teacher for practical MSc course on astronomical data
- *Taught students about how data is collected and how to reduce photometric and spectroscopic data using astronomy-orientated software*
- Feb - August 2020 **Bachelors degree in physics - final project (University of Copenhagen):**
 Role: main supervisor. Student: K. Veng Johanson
- *Designed a 3 month BSc project, supervised and guided the student's research, assessed final work.*
- June - August 2018 **Masters degree in physics - summer project (University of Southampton):**
 Role: main supervisor. Student: A. Knight
- *Designed a 2 month summer project, supervised and guided the student's research, assessed final work*
- Feb - April 2018 **Bachelors degree in physics - Tenerife Field Trip (University of Southampton):**
 Role: Co-teacher for practical course on astronomical data.
- *Helped students design individual observing projects, execute their observations, taught them how to collect, reduce and analyse their final data*
- Sep 2013 - Mar 2016 **Bachelors degree in physics - 1st year laboratory (University of Warwick):**
 Role: Laboratory demonstrator

MENTORING EXPERIENCE

- Sept 2020 - Present **The Supernova Foundation**
Personal mentor to two female undergraduate physics students providing guidance on career choices, postgraduate applications, work-life balance and gender-specific harassment within academia.
- Oct 2019 - Present **DARK mentor**
Mentor for four PhD students at DARK, providing guidance on work-life balance, postgraduate applications and any PhD-specific issues which may occur

AWARDS

- 2021 Marie Skłodowska-Curie Actions Seal of Excellence
- 2019 DARK Research Fellowship at Niels Bohr Institute, University of Copenhagen
- 2017 Vice-Chancellors award for Equality, Diversity and Inclusion, University of Southampton

INVITED TALKS

- 01/03/2022 **University of Southampton, UK, Group Seminar**
 Title: "Fast & Furious: Extreme Tidal Disruption Events"
- 20/10/2021 **University of Bath, UK, Group Seminar**
 Title: "Exploring exotic transients in modern surveys"
- 16/06/2021 **University of Cardiff / University of Bristol, UK, Group Seminar**
 Title: "Exploring exotic transients in modern surveys"
- 25/03/2021 **University of California Santa Cruz, USA, FLASH Seminar Talk**
 Title: "Exploring exotic transients in modern surveys"
- 04/12/2021 **Trinity College Dublin, Ireland, Group Seminar**
 Title: "Exotic Transients in the Young Supernova Experiment"
- 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 workshop
Title: “Superluminous Supernova Hosts”
- 19/12/2017 **ESO Santiago, Chile**, Group Seminar
“Superluminous supernovae from the Dark Energy Survey”

CONTRIBUTED TALKS

- 03/05/2022 **INTERMEDIATE-MASS BLACK HOLES: New Science from Stellar Evolution to Cosmology, Puerto Rico, USA**
Title: “AT2020neh: A tidal disruption event from an intermediate mass black hole ”
- 17/11/2021 **SuperVirtual 2021, online conference**
Title: “AT2020neh: A fast and bright tidal disruption event from an intermediate mass black hole ”
- 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”

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	Title: "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 for 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

OUTREACH AND ENGAGEMENT

2021	Astronomy on Tap , Copenhagen, Denmark. <i>Online public talk titled "How many ways can you make a star explode?" (available to view here)</i>
2019	Think Space Lecture , Royal Museums Greenwich, London, UK. <i>Presented public lecture titled "How many ways can you make a star explode?"</i>
2018	Soapbox Science Presenter , Brighton, UK. <i>Presented my research with short talks and interactive activities to members of the public as part of the Soapbox Science Festival</i>
2018	Stargazing Live Talk , University of Southampton, UK. <i>Presented a public lecture on the 'Physics of Supernovae' as part of broader public engagement event</i>
2017-2019	Women's Physics Network Outreach events , University of Southampton, UK. <i>Organised and participated in a wide variety of outreach events, primarily aimed at female students aged 5-16. Events included interactive demonstrations and short talks.</i>
2016	Coventry LACES Event , University of Warwick, UK. <i>Organised and presented astronomy orientated activities for 5-11 year old children involved with the Coventry LACES scheme for children from disadvantaged backgrounds</i>

2014 - 2016 **Planetarium Presenter**, University of Warwick, UK.
Presented planetarium shows to wide range of school pupils (aged between 5-16)

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). Photometric analysis, fitting of photometric models, SED fitting.

Spectroscopy: Experience in the reduction of optical spectra, in particular spectra obtained with WHT (ACAM, ISIS), VLT (XShooter), NTT (EFOSC). Spectral manipulation and line modelling analysis.

Computing:

Extensive experience: Python, IRAF, ds9, SExtractor, Esoreflex, LATEX, Linux/UNIX, Mac OS.

Basic familiarity: IDL, SQL, STARLINK, C

PEER REVIEW SERVICE

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| 2021-present | Scientific peer review for papers in scientific journals (MNRAS, ApJ)
<i>Papers reviewed: 2</i> |
| 2019 | Scientific peer review for science cases in STFC Consolidated Grant proposals
<i>Proposals reviewed: 2</i> |
| 2018 - present | Scientific peer review for Liverpool Telescope Proposals
<i>Proposals reviewed: 7</i> |
| 2018 - present | Scientific peer review for Hubble Space Telescope Directors Discretionary Time proposals
<i>Proposals reviewed: 3</i> |

REFERENCES

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PUBLICATIONS

First Author:

- **Angus, C. R. et al.**, “*A fast rising tidal disruption event from a candidate intermediate mass black hole*”, *Nature Astronomy*, *accepted* (2022).
- **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:

- Pitik, T., Tamborra, I., **Angus, C.R.** and Auchettl, K., “*Is the high-energy neutrino event IceCube-200530A associated with a hydrogen rich superluminous supernova*”, *ApJ*, 929, 163 (2022)
- Frohmaier, C. D., **Angus, C.R.** et al., “*From core collapse to superluminous: The rates of massive stellar explosions from the Palomar Transient Factory*”, *MNRAS*, 500, 5142 (2021)
- Inserra, C., Sullivan, M., **Angus, C. R.** et al., “*First Hubble diagram and cosmological constraints using superluminous supernovae*”, *MNRAS*, 504, 2535 (2021).

Fourth or later author articles in refereed journals:

- Pérez-García, M. A. et al. (including **Angus, C. R.**), “*Hubble constant and nuclear equation of state from kilonova spectro-photometric light curves*”, eprint arXiv:2204.00022 (2022)
- Jacobson-Galán, W. et al. (including **Angus, C. R.**), “*The Circumstellar Environments of Double-Peaked, Calcium-strong Supernovae 2021gno and 2021inl*”, eprint arXiv:2203.03785, submitted to *ApJ* (2022)
- Pursiainen, M. et al. (including **Angus, C. R.**), “*SN 2018bsz: a Type I superluminous supernova with aspherical circumstellar material*”, eprint arXiv:2202.01635, submitted for publication in *A&A* (2022)
- Paulino-Afonso, A. et al. (including **Angus, C. R.**), “*Systematic errors on optical-SED stellar mass estimates for galaxies across cosmic time and their impact on cosmology*”, eprint arXiv:2202.04078, submitted for publication in *A&A* (2022)
- Srivastav, S. et al. (including **Angus, C. R.**), “*SN 2020kyg and the rates of faint Iax Supernovae from ATLAS*”, *MNRAS*, 511, 2708 (2021)
- Terreran, G. et al (including **Angus, C. R.**), “*The Early Phases of Supernova 2020pni: Shock-Ionization of the Nitrogen-Enriched Circumstellar Material*”, *ApJ*, 926, 20 (2022).
- Jones, D. et al. (including **Angus, C. R.**), “*The Young Supernova Experiment: Survey Goals, Overview, and Operations*”, *ApJ*, 908, 143 (2021)
- Gutiérrez, C. P. et al (including **Angus, C. R.**), “*DES16C3cje: A low-luminosity, long-lived supernova*”, *MNRAS*, 496, 95 (2020)
- Izzo, L. et al (including **Angus, C. R.**), “*Broad-line type Ic SN 2020bvc. Signatures of an off-axis gamma-ray burst afterglow*”, *A&A*, 639, L11 (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).
 - Abbott, T. M. C. (including **Angus, C. R.**), “*First cosmology results using Type Ia Supernovae from the Dark Energy Survey: Constraints on Cosmological Parameters*”, ApJL, 872, L30 (2019)
 - Gromadzki, M et al. (including **Angus, C. R.**), “*Discovery and follow-up of the unusual nuclear transient OGLE17aaj*”, A&A, 622, L2 (2019)
 - 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).
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