

RESEARCH INTERESTS

- Supernovae, especially the late-time evolution of core-collapse supernovae
- The origins and evolution of cosmic dust in the Universe
- Astrophysical modelling techniques, especially Monte Carlo and radiative transfer

EDUCATION

- Feb 2016: **PhD in Astrophysics**, University College London, Supervisor: Prof. M. J. Barlow
"Dust Affected Models of Characteristic Line Emission in Supernovae"
- Jul 2012: **BA & MSci, First Class Honours**, Maths & Astrophysics
Clare College, University of Cambridge (MSci supervisor: Prof. C. Clarke)

EMPLOYMENT

- Dec 2018— **Visiting research fellow**, DARK, Niels Bohr Institute, University of Copenhagen
- Sept 2016— **Post-doctoral research associate**, University College London, UK
Named PDRA on ERC Advanced Grant 'SNDUST', PI: Prof. M. J. Barlow
- Jan-Jul 2016: Strategic Analyst, Cambridge Consultants, Cambridge, UK
- 2012 - 2015: Personal Tutor (Maths & Physics, Key Stage 3 to undergraduate), De Silva Tutors

AWARDS AND PRIZES

- Mar 2019: **Short Term Scientific Mission Grant** (€1700) awarded by European Cooperation in Science and Technology (COST) to visit the Anton Pannekoek Institute, University of Amsterdam
- May 2017: Royal Astronomical Society **Michael Penston Thesis Prize: runner-up**
- Sept 2016: UCL Chris Skinner Dept. of **Physics and Astronomy Thesis Prize**
- Jul-Aug 2011: **Royal Astronomical Society Small Grant** (£850) for a short research project Munich, Germany (Supervisor: Prof. Barbara Ercolano)

RESEARCH PRESENTATIONS

INVITED SEMINARS AND COLLOQUIA

- Feb 2020: **Invited seminar**, Queens' University, Belfast, UK
- Dec 2019: **Invited seminar**, Cardiff University, UK
- Nov 2019: **Invited seminar**, University of Hertfordshire, UK
- Sept 2019: **Invited seminar**, The Royal Observatory, Edinburgh, UK
- Mar 2019: **Invited seminar**, University of Southampton, UK
- Feb 2019: **Invited seminar**, University of Copenhagen, Denmark
- Sept 2018: **Invited talk**, Purdue University, US
- Sept 2018: **Invited colloquium**, University of Amsterdam, The Netherlands
- Nov 2017: **Invited seminar**, University of Sheffield, UK
- Nov 2016: **Invited seminar**, DESY, Berlin, Germany

CONFERENCE TALKS AND PRESENTATIONS

- July 2018: **Invited talk**, Open Question in Astrophysics, Copenhagen, Denmark
- May 2018: **Contributed talk**, Shocking Supernovae, Stockholm, Sweden
- Aug 2017: **Contributed talk**, Cosmic Dust X, Tokyo, Japan

Mar 2017: **Contributed talk**, The AGB-Supernovae Mass Transition, Rome, Italy
 Jul 2015: **Contributed talk**, National Astronomy Meeting, Llandudno, Wales
 2014— : A further 5 posters presented at international conferences.

TEACHING EXPERIENCE

Aug 2017&19: **Invited lecturer**, Monte Carlo Radiation-Hydrodynamics Summer School, St Andrews, UK
 Oct 2017— **Co-supervisor (unofficial)**, PhD student (Maria Niculescu-Duvaz)
 2017/18: **Lecturer**, Interstellar Physics (18 hours), Certificate in Astronomy, UCL
 2016/17: **Co-supervisor**, MSc student (Lisa Kelsey)
 2007 - 2015: Personal tutor in Maths & Physics (part-time; Key Stage 3 to undergraduate)

AWARDED OBSERVING TIME

Awarded time as **Principal Investigator**:
 2018: ESO Very Large Telescope X-Shooter, "Dust masses from line asymmetries in late-time spectra of X-ray emitting supernovae" (**PI: Bevan**; 20 hours)
 Awarded time as **Co-Investigator**:
 2019: SOFIA, "A SOFIA study of Supernova 1987A's dust components" (PI: Matsuura)
 2018: JCMT SCUBA-2, "Dust polarisation properties in Cassiopeia A" (PI: De Looze)
 2017: Gemini Observatory (GMOS North), "Red-Blue Line Asymmetries in Core-Collapse Supernovae" (PI: Krafton)
 2017: SOFIA, "Dust polarisation properties in the Crab Nebula" (PI: De Looze)
 2016: ESO Very Large Telescope X-Shooter, "Determining supernova ejecta dust masses from late-epoch X-shooter spectra" (PI: Barlow)
 2015: Spitzer, "Continuous Dust Formation in Type II Supernovae" (PI: Krafton)

AWARDED COMPUTING TIME

Awarded time as **Co-Investigator**:
 Mar 2019: DiRAC, "SNDUST: Dust Survival Rates in SNRs" (PI: Barlow, 280k core hours)

ORGANISATION OF SCIENTIFIC MEETINGS

Jan 2020: **Invited session chair** of the Royal Astronomical Society Specialist Discussion Meeting: "Radiation hydrodynamics: Implementation and application"
 Jan 2019: **Lead organiser and session chair** of the Royal Astronomical Society Specialist Discussion Meeting: "The Supernova-Supernova Remnant Connection"

PROFESSIONAL SERVICE

COMMITTEES AND RESPONSIBILITIES

2018— Member of The 1752 Group, a lobbying and research organisation to address sexual misconduct in higher education drafting best practice harassment and bullying policy in the UK and advising UKRI, UUK and UCU
 2018— Creator and member of the UCL Physics and Astronomy Welfare Committee
 2017— Member of the UCL Prevention of Sexual Misconduct Strategy Group contributing to redrafting of key policies around bullying and harassment
 2017— Creator and member of the UCL Astrophysics Group Welfare Committee
 2017— Member of UCL Physics and Astronomy Equality & Diversity/JUNO Committee
 2017— Lead organiser and creator of the UCL Physics and Astronomy Peer-Mentoring Scheme

2017— Member of The Supernova Foundation leadership team and mentor (virtual mentoring for undergraduate women in Physics in developing nations)

OUTREACH: SELECTED RECENT TALKS AND EVENTS

Science

Mar 2020: Session chair for UCL Astronomy Outreach festival "Your Universe: 30 Years of the Hubble Space Telescope"

Feb 2020: Invited talk, "How to write a Monte Carlo code: from theory to practice", Queens' University Belfast Programming Club

Apr 2019: Invited talk, "Searching for Stardust", Westminster Reference Library

July 2019: Exhibitor on the JWST stand, Royal Society Summer Science Exhibition

Welfare and Inclusion

Aug 2019: Invited workshop, "Confidence in Academia", Monte Carlo Radiation-Hydrodynamics Summer School, St Andrews, UK (invited 2-hour workshop which I designed and ran)

Jul 2019: Invited talk, "Sexual Misconduct in Astronomy", European Week of Astronomy and Space Science, Lyon, France

Mar 2019: Invited talk, "Staff Sexual Misconduct in UK Higher Education", Sexual Violence in Higher Education conference, Loughborough University, UK

Nov 2018: Invited talk, "Welfare of Students and Staff: Tackling Sexual Misconduct", RAS Astronomy Forum

JOURNAL REVIEW

2016— Reviewer for The Astrophysical Journal, MNRAS, and Astronomy & Astrophysics

PUBLICATION LIST

FIRST AUTHOR ARTICLES

1. *Disentangling Dust Components in SN 2010jl: The First 1400 Days*
A. Bevan, K. Krafton, R. Wesson, J. E. Andrews, E. Montiel, M. Niculescu-Duvaz, M. J. Barlow, I. De Looze, G. C. Clayton, ApJ (submitted)
2. *A decade of ejecta dust formation in the Type II SN 2005ip*
A. Bevan, R. Wesson, M.J. Barlow, I. De Looze, J.E. Andrews, G.C. Clayton, K. Krafton, M. Matsuura, & D. Milisavljevic (2019), MNRAS, 485, 5192
3. *Measuring dust in core-collapse supernovae with a Bayesian approach to line profile modelling*
A. Bevan (2018), MNRAS, 480, 4659
4. *Dust masses for SN 1980K, SN 1993J and Cassiopeia A from red-blue emission line asymmetries*
A. Bevan, M. J. Barlow & D. Milisavljevic (2017), MNRAS, 465, 4044
5. *Modelling supernova line profile asymmetries to determine ejecta dust masses: SN 1987A from days 714 to 3604*
A. Bevan & M. J. Barlow (2016), MNRAS, 456, 1269

OTHER PUBLICATIONS

6. *Upper limits on the masses of newly-formed dust in core-collapse supernovae*
F. D Priestley, **A. Bevan**, M. J. Barlow and I. De Looze, MNRAS (submitted),
7. *Dust survival rates through the Cas A reverse shock I: results for a range of clump densities*
F. Kirchschrager, F. D. Schmidt, M. J. Barlow, E. L. Fogerty, **A. Bevan** & F. D. Priestley (2019), MNRAS, 489, 4465
8. *The dust content of the Crab Nebula*
I. De Looze, M. J. Barlow, R. Bandiera, **A. Bevan**, M. F. Bietenholz, H. Chawner, H. L. Gomez, M. Matsuura, F. Priestley & R. Wesson (2019), MNRAS, 488, 164
9. *SOFIA mid-infrared observations of Supernova 1987A in 2016 - forward shocks and possible dust re-formation in the post-shocked region*
M. Matsuura, J. M. De Buizer, R. G. Arendt, E. Dwek, M.J. Barlow, **A. Bevan**, P. Cigan, H. L. Gomez, J. Rho, R. Wesson, P. Bouchet, J. Danziger & M. Meixner (2019), MNRAS, 482, 1715
10. *Dust in supernovae: Do supernovae produce the first dust in the Universe?*
M. Matsuura, C. Inerra, M. Meixner, L. Armus, **A. Bevan**, I. De Looze, H. L. Gomez, S. Sadavoy, J. E. Andrews, M. J. Barlow, G. C. Clayton, J. H. Rho (2019), Astro2020: Decadal Survey on Astronomy and Astrophysics 2020, 573
11. *The spectral energy distribution of protoplanetary discs around massive young stellar objects*
B. Ecolano, **A. Bevan** & T. Robitaille (2013), MNRAS, 428, 2714

PUBLISHED SOFTWARE

12. *DAMOCLES: Monte Carlo line radiative transfer code*
A. Bevan (2018), Astrophysics Source Code Library, ASCL:1807.023
<https://github.com/damocles-code>

IN PREPARATION

13. *Late-time dust formation in the ejecta of supernova SN1995N*
R. Wesson, **A. Bevan**, M.J. Barlow, I. de Looze, G. Clayton, K. Krafton, J. Andrews (in prep.)
14. *Determining the dust mass in Cassiopeia A from IR and optical line flux differences*
Maria Niculescu-Duvaz, M. Barlow, **A. Bevan**, D. Milisavljevic, I. De Looze (in prep.)