# Dominic M. Bowman

PhD, MSci. (Hons), FRAS, MInstP, FHEA

### Reader in Astrophysics and Royal Society University Research Fellow

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### I. Professional Profile

Holder of a Readership faculty position, a Royal Society University Research Fellowship, and a UKRI Frontier Research Grant (SYMPHONY) at Newcastle University. Extensive astrophysics expertise in the extraction and analysis of photometric and spectroscopic data from space- and ground-based telescopes, and forward asteroseismic modelling of pulsating stars, which yields tight constraints on their interior physics such as rotation, mixing, magnetism, and angular momentum transport. Passionate and actively involved in developing teaching at the BSc, MSc and PhD level, and mentoring, advocacy and outreach activities for all ages and backgrounds.

Completed PhD in Astronomy at the University of Central Lancashire under the supervision of Prof. Donald Kurtz, and PhD thesis was published as a Springer monograph. International move to KU Leuven as a postdoctoral researcher, and later awarded a competitive FWO research fellowship. Over 90 peer-reviewed publications, with dozens of high-impact first-author papers including in Nature Astronomy. Winner of several prestigious prizes for research excellence and upwards career trajectory including: Springer Thesis Prize (2017); KU Leuven Research Council Award in Science, Engineering and Technology (2020); Henri Vanderlinden Prize of the Flemish Academy (2022); and George Darwin Lectureship of the Royal Astronomical Society (2023).

### II. Education

#### PhD in Astronomy

Oct 2013 - Nov 2016

Thesis title of 'Amplitude modulation and energy conservation of pulsation modes in delta Scuti stars', awarded outright (no corrections) on 21 November 2016 by the University of Central Lancashire (UCLan), with supervisor of Prof. Donald Kurtz and funded by the UK Science and Technology Facilities Council (STFC).

#### MSci in Physics and Astrophysics

Sept 2009 – June 2013

First-class integrated Master (BSc + MSc) in Science (MSci) degree with honours in Physics and Astrophysics from the University of Birmingham, with an award date of 8 July 2013.

### III. Employment

#### Reader in Astrophysics

1 Sept 2023 – date

School of Mathematics, Statistics and Physics, Newcastle University, Newcastle upon Tyne, NE1 7RU, UK.

#### **Guest Professor**

1 Sept 2023 - date

Institute of Astronomy, KU Leuven, Celestijnenlaan 200D, 3001 Leuven, Belgium.

#### **FWO Senior Postdoctoral Fellowship**

1 Nov 2020 - 31 Aug 2023

Institute of Astronomy, KU Leuven, Celestijnenlaan 200D, 3001 Leuven, Belgium. Independent research fellowship funded by Fonds Wetenschappelijk Onderzoek (FWO) Vlaanderen [PI Bowman; grant number: 1286521N].

#### Postdoctoral Research Associate

1 Feb 2017 - 31 Oct 2020

Institute of Astronomy, KU Leuven, Celestijnenlaan 200D, 3001 Leuven, Belgium. Funded by the European Union's Horizon 2020 research and innovation programme [ERC-AdG; PI Aerts; grant number: 670519].

#### Lecturer in Astronomy

19 Sept 2016 - 13 Jan 2017

Jeremiah Horrocks Institute, University of Central Lancashire, Preston, PR1 2HE, UK.

Curriculum Vitae: D. M. Bowman

### IV. Scientific Prizes, Awards and Competitive Grant Funding

Multiple prestigious prizes for scientific excellence and having an upwards career trajectory. A funding portfolio as PI from successful competitive applications to date that exceeds €5 M (£4.3 M), which includes international research councils and charities including the Royal Society, UKRI, ERC, FWO, and several universities.

#### **Scientific Prizes and Awards:**

#### George Darwin Lectureship, RAS

2023

Awarded the 2023 George Darwin Lectureship of the Royal Astronomical Society (RAS) for being an authoritative and engaging researcher in astronomy.

### Henri Vanderlinden Prize, Royal Flemish Academy

2022

Prestigious and competitive prize for an important original work in the field of astronomy from the Koninklijke Vlaamse Academie van België (KVAB) voor Wetenschappen en Kunsten, which included a cash prize.

### Research Council Award (POR), KU Leuven

2020

Prestigious and highly-competitive prize from KU Leuven's Research Council awarded to only one postdoc in STEM for research excellence and an upwards career trajectory, which included  $\leq 20,000$  of research funding.

#### Springer Thesis Award

2017

PhD thesis selected to be published in the Springer thesis series in 2017 for 'Outstanding PhD Research', which included a cash prize.

### **Successful Competitive Grant Applications:**

#### Royal Society University Research Fellowship

Dec 2023 - Nov 2031

Awarded a coveted Royal Society University Research Fellowship (URF; £1,400,000) for the ECLIPSE project focussed on massive stars in eclipsing binaries [grant number: URF\R1\231631].

ERC-StG-2023 Sept 2023

Invited to sign grant agreement for 2023 call of ERC starting grant (€1,500,000). Unable to sign ERC grant agreement because UK was at the time not formally associated to ERC Horizon framework, so declined.

#### ERC-StG-2022 / UKRI Frontier Research Grant

Oct 2023 - Sept 2028

Invited to sign grant agreement for 2022 call of ERC starting grant for the SYMPHONY project focused on blue supergiant asteroseismology. Unable to sign ERC grant agreement because UK was at the time not formally associated to ERC Horizon framework. Awarded equal funding under UKRI's Horizon Guarantee Scheme to implement the SYMPHONY project at a UK host institution (£1,300,000) as a UKRI Frontier Research Grant [grant number: EP/Y031059/1].

#### **FWO Postdoctoral Fellowship**

Nov 2020 - Aug 2023

Awarded a senior postdoctoral fellowship of Fonds Wetenschappelijk Onderzoek (FWO) Vlaanderen (€ 260,000) for the TESSERACT asteroseismology project [grant number: 1286521N].

#### **FWO Long Stay Abroad Grant**

Oct - Dec 2021

Awarded a competitive FWO grant for a long research stay abroad to cover all costs for an invited visit to KITP, California, USA for 3 months in 2021, for a total of approximately  $\in$  6000 [grant number: V411621N].

#### **Conference Organisation**

Sept 2015

Successful funding applications of  $\bf £\,3000$  from the Royal Astronomical Society (RAS) and  $\bf £\,7000$  from UCLan for organisation of the STARS2016 conference together with Dr. Daniel Holdsworth.

#### **Small Travel Grants**

Numerous travel bursary applications from funding bodies for attending conferences, which include STFC and RAS in the UK, CNRS in France and FWO in Belgium, and travel costs for obtaining competitive telescope time in visitor mode (e.g. ESO), with a combined total of approximately **£15,000**.

Curriculum Vitae: D. M. Bowman

### V. Conference Organisation

Three times (co-)chair of an SOC, twice chair of an LOC, and twice a member of an SOC for large (75+ people) international conferences.

#### TASC8/KASC15, Porto, Portugal

15 - 19 July 2024

SOC member for the annual asteroseismology conference, which had 200+ participants.

#### EAS 2023, Kraków, Poland

10 - 14 July 2023

SOC member of the BRITE/MOBSTER symposium entitled 'From stellar variability to stellar structure and evolution' at the EAS 2023 meeting, which had 100+ participants.

#### TASC6/KASC13, Leuven, Belgium

11 - 15 July 2022

Chair of the LOC for the annual asteroseismology conference, which had a budget of €70,000, and 200 in-person and 100+ online participants. Postponed from 2020 to 2022 because of the COVID-19 pandemic.

### **EAS 2021**, Virtual (hosted by Leiden University, the Netherlands)

28 June - 2 July 202

Co-Chair of the SOC of the symposium titled 'Massive stars: birth, rotation, and chemical evolution' at the EAS 2021 meeting, which had 100+ participants.

### MOBSTER-1, Virtual (hosted by University of Delaware, USA)

13 - 17 July 2020

Co-Chair of the SOC for the virtual MOBSTER-1 conference, which had 170+ participants.

#### **EAS 2020**, Virtual (hosted by Leiden University, the Netherlands)

29 June - 3 July 2020

Chair of the SOC of the session titled 'New insights of angular momentum transport in stellar interiors' held on 1 June during the EAS 2020 meeting, which had 100+ participants.

#### STARS2016, Windermere, UK

11 - 15 Sept 2016

Chair of the LOC for the conference celebrating the career of Prof. Donald Kurtz, which had 75 participants and a budget of £40,000. Successful grant applications included £3000 from the RAS and £7000 from UCLan.

## **VI. Personal Training**

### Bullying and Harassment in Astronomy, Virtual, (hosted by RAS)

17 May 2024

Workshop on the results of the RAS's bullying and harassment impact survey and improved best practices.

#### **Decolonising the Curriculum**, Newcastle University

8 April 2024

Seminar and discussion session led by Prof. Nira Chamberlain, OBE, on inclusive education.

#### PhD Student Supervision, Northumbria University

8 Dec 2023

Workshop from higher education and early-career groups of IOP on best practices of PhD supervision.

#### **Onboarding Faculty Training**, Newcastle University

Sept 2023

Several seminars and training sessions on EDI, GDPR, project management, student welfare and supervision.

#### **Anti-Racism in Astronomy and Geophysics**, *Virtual*, (hosted by RAS)

12 Aug 2021

Seminars and training sessions on best practices for anti-racism in academia.

Sex and Gender Dimensions in Frontier Research, Virtual (hosted by ERCEA)

16 Nov 2020

**Voice of the Future**, *Westminster*, *London*, *UK*15 Mar 2017

Nominated an ECR representative of the RAS to attend this meeting on bridging scientists and UK politicians.

### STFC Careers Event, Institute of Physics, London, UK

21 Oct 2015

Seminars and training sessions on career planning and management.

Seminars and training sessions on diversity initiatives in academia.

### Media Training for Outreach, Royal Society, London, UK

7 Oct 2015

Training sessions on various media-related aspects of outreach activities.

### VII. International Responsibilities, Committees and Service

#### Member of CDAG, RAS

May 2024 - date

Member of Committee for Diversity in Astronomy and Geophysics (CDAG) of the Royal Astronomical Society.

#### Review Editor, MDPI Galaxies

Sept 2023 - date

Review editor and editorial board member for the MDPI journal Galaxies.

#### **Executive Organising Committee Member, IAU WGABS**

Nov 2022 - date

Executive organising committee member for the active B-star working group (WGABS) of the IAU.

#### **Associate Editor. Frontiers**

Feb 2021 - date

Editorial board member and Associate Editor for the journal Frontiers in Astronomy and Space Sciences.

#### XShootU WG12 chair

Dec 2020 - date

Point of contact (chair) of the pulsations WG12 of ULLYSES targets within the XShootU collaboration.

#### co-PI MOBSTER collaboration

Nov 2020 – date

Together with PI A. David-Uraz and co-PI C. Neiner, responsible for maximising the scientific productivity of the MOBSTER collaboration, which leverages TESS data to study massive magnetic stars.

#### SHOC/SAAO and MAIA/Mercator pipeline developer

July 2020 - date

Principal author of the TEA-PHOT pipeline to reduce data and extract light curves from the SHOC/SAAO and the MAIA/Mercator instruments. The TEA-PHOT pipeline is published: Bowman & Holdsworth (2019, A&A, 629, A21), and is endorsed by the SHOC and MAIA instrument teams as the go-to reduction pipeline.

**BEST member** Sept 2019 – date

Member (non-voting) of the BRITE Executive Science Team (BEST) for the BRITE-constellation space mission.

#### **CubeSpec Space Mission**

Jan 2019 – date

Scientific advisor and consortium member for the massive star asteroseismology science case of the CubeSpec cubesat mission being built by KU Leuven in collaboration with ESA and private contractors.

#### **Grant Funding Reviewer**

Sept 2018 – date

Invited 5+ times to review small and large research grant funding applications for national and international research councils, for example STFC in the UK.

Journal Peer Reviewer

Oct 2016 - date

40+ times invited peer reviewer of publications in international journals: Nature Astronomy, Nature Communications, A&A, MNRAS, ApJ, AJ, PASA, FRAS, OJA, Galaxies, and JAAVSO.

#### **Previous Responsibilities:**

#### WG Chair, Arago space mission

Jan 2022 - Nov 2022

Chair of the 'Hot (BA) Stars' working group for the Arago mission, which was a candidate M7 ESA space mission on UV+Visible spectropolarimetry of stars across the HR diagram: not selected in Nov 2022.

#### **Good Vibrations seminar series**

Nov 2020 - March 2023

Steering committee member for the Good Vibrations seminar series, which provided opportunities for PhD students to share their research internationally during the COVID pandemic years.

#### **RAS ECN** committee member

June 2020 - March 2023

Founding member and secretary of the Early Career Network (ECN) of the Royal Astronomical Society (RAS).

#### **ESO OPC** expert panel member

Sept 2021 to Jan 2023

Observing Program Committee (OPC) expert panel member in panel D (Stellar Evolution) for European Southern Observatory (ESO) proposal semesters P109 – P111. Co-Chair of panel in semester P111.

#### **PLATO** external reviewer

Nov 2020

External reviewer for the on-ground data processing algorithms on behalf of the complementary science program (WP16) of the ESA PLATO mission.

### VIII. Professional and Learned Societies

#### Fellow of the Higher Education Academy

June 2024 - date

Elected a fellow of the Higher Education Academy (FHEA), which permits the use of the post-nominal FHEA.

#### International Astronomical Union

Jan 2020 - date

Elected an individual member of the International Astronomical Union (IAU).

### **European Astronomical Society**

April 2019 - date

Member of the European Astronomical Society.

### **Royal Astronomical Society**

Oct 2013 - date

Elected a fellow of the Royal Astronomical Society (RAS), which permits the use of the post-nominal FRAS.

#### Institute of Physics

Oct 2013 - date

Member of the Institute of Physics (IOP), which permits the use of the post-nominal MInstP.

### IX. Observing Projects and Experience

Successful telescope proposals as (co-)PI with competitive ground-based observatories totalling **2000+ hours**, with **120+** nights of first-hand experience at world-class telescopes, and four successful TESS guest investigator proposals as PI targeting 1800+ massive stars.

### Stellar Oscillation Network Group (SONG), Tenerife, Spain & Australia

• PI of programme in period 13 (Summer 2023) to obtain time-series spectroscopy of high-mass pulsating eclipsing binaries (23.AST-07; 260 hr; PI Bowman).

#### European Southern Observatory (ESO), Chile

- $\rightarrow$  14 nights of observing experience as visiting astronomer in December 2019 using the FEROS spectrograph mounted on the 2.2-m MPG/ESO telescope at La Silla observatory.
- $\rightarrow$  4 nights of observing experience as visiting astronomer in June 2024 using the ESPRESSO spectrograph on UT1 of the VLT at Paranal observatory.
- PI of (visitor mode) programme obtaining time-series spectroscopy of the pulsating massive star zeta Oph with ESPRESSO (113.26B9.001; 40 hr; PI Bowman).
- Co-I of large programme obtaining multi-epoch spectroscopy of massive stars in the SMC with FLAMES (112.25R7; 120 hr; PI Shenar).
- Co-I of programme obtaining Gravity interferometry of the eclipsing Be binary system HD 93683 (109.23H0; 12 hr; PI Bodensteiner).
- Co-PI of programme obtaining multi-epoch high-resolution spectroscopy of gamma Doradus stars with UVES (106.21S8.001; 106.21S8.002; 106.21S8.003; 21 hr; PI Christophe).
- Co-PI of (visitor mode) programme obtaining multi-epoch high-resolution spectroscopy of massive binary stars with FEROS (0106.A-9106; 90 hr; PI Aerts).
- Co-PI of large programme obtaining multi-epoch high-resolution spectroscopy of massive stars with UVES (1104.D-0230; 120 hr; PI Tkachenko).
- Co-PI of (visitor mode) programme obtaining multi-epoch high-resolution spectroscopy of massive stars with FEROS (0104.A-9001; 120 hr; PI Aerts).
- Co-I of DDT programme obtaining phase-resolved high-resolution spectroscopy of the pulsating eclipsing binary system U Gru with UVES (103.200F; 4 hr; PI Johnston).

#### Transiting Exoplanet Survey Satellite (TESS), NASA

- PI of four TESS Guest Investigator proposals obtaining high-precision and short-cadence time series photometry of massive stars in cycle 3 in 2020 (GO3059; 1058 stars; PI Bowman), cycle 4 in 2021 (GO4074; 1618 stars; PI Bowman), cycle 5 in 2022 (GO5036; 1818 stars; PI Bowman), and cycle 6 in 2023 (GO6037; 1594 stars; PI Bowman).
- Co-I of multiple TESS Guest Investigator proposals obtaining high-precision and short-cadence time series photometry of intermediate- and high-mass stars in cycles 1–4.

### South African Astronomical Observatory (SAAO), Sutherland, South Africa

- ightarrow 21 nights of observing experience as visiting astronomer in May and June 2017 using the SHOC imager mounted on the 1-m telescope at SAAO to obtain high-cadence photometry of roAp stars.
- PI of service time proposal to gain high-cadence photometry of candidate roAp stars in May 2018.

#### Mercator Observatory, La Palma, Spain

- $\rightarrow$  65 nights of observing experience using the HERMES and MAIA instruments on the 1.2-m Mercator telescope between 2017 and 2022, which included visitor mode and service observing.
- PI of HERMES large program awarded 1000+ hr across 2022–2025 to obtain multi-epoch spectroscopy of pulsating massive stars discovered by TESS.
- PI of HERMES (visitor mode) proposal awarded 80 hr in semester 2021a to obtain time-series spectroscopy of high-mass pulsating eclipsing binaries discovered by TESS.
- PI of MAIA (visitor mode) proposal awarded 120 hr in semester 2020b to obtain short-cadence multi-colour time-series photometry of roAp stars observed by K2 and TESS.
- PI of HERMES proposal awarded 70 hr in semester 2018b, 35 hr in semester 2019a and 90 hr in semester 2019b to obtain spectroscopy of Ap stars being observed by TESS.
- PI of a HERMES proposal awarded 60 hr in semester 2018a to obtain accurate stellar parameters for pulsating B, A and F stars in the *Kepler* field for forward seismic modelling.
- PI of a  $\rm HERMES$  proposal awarded 40 hr in semester 2017a and 20 hr in semester 2018a to study high-mass companions to  $\delta$  Sct stars in binary systems discovered using pulsation timing.

#### Moses Holden Telescope (MHT), UCLan, Preston, UK

 $\rightarrow$  20 nights of observing experience using the imager on the 0.75-m MHT in 2016 and 2017.

#### William Herschel Telescope (WHT), La Palma, Spain

ullet PI of service time proposal in 2016 to gain accurate  $T_{
m eff}$  values for 23  $\delta$  Sct stars observed by *Kepler*.

### X. Teaching and Supervision Experience

Supervisor of **2** ongoing PhD students at Newcastle University, supervisor of **2** PhD students to completion, and member of **4** international PhD examination/jury committees. Supervisor of **6** MSc students to completion (of which 5 went onto complete a PhD), and member of a further **5** MSc thesis examination committees.

#### PhD Theses, Newcastle University, UK

• Supervisor of Pieterjan Van Daele formal start date: Sept 2024

Stochastic low-frequency variability in massive stars

• Supervisor of Logan Dennis formal start date: Sept 2024

Forward modelling of massive pulsating eclipsing binaries

• Co-Supervisor of Betsy Parnham formal start date: Sept 2024

Dynamical processes in stellar interiors

• Co-Supervisor of Lucas Corrigan formal start date: Sept 2024

MHD simulations of IGWs in massive stars

• Supervisor of Ankur Kalita April 2024 – date

Forward asteroseismic modelling: constraining the physical origin of macroturbulence

• Supervisor of Federica Nardini

Asteroseismology of massive binary systems

Jan 2024 – date

#### PhD Theses, KU Leuven, Belgium

- Progress and examination committee (jury) member of Joris Hermans
   Understanding the influence of cooling curves and flow on thermal instability
- Co-Supervisor of Jordan Van Beeck

  Asteroseismology of Kepler B stars: internal magnetism and nonlinear mode coupling
- Examination committee (jury) member of Mathias Michielsen

  Nov 2022

  Forward seismic modelling of B-type stars
- **Supervisor** of Siemen Burssens Sept 2018 July 2022 *Massive star asteroseismology with K2 and TESS*
- Progress and examination committee (jury) member of Joey S. G. Mombarg
   Feb 2018 Feb 2022
   Asteroseismic modelling of intermediate-mass stars
- Examination committee (jury) member of Camilla Scolini May 2020 Magnetised coronal mass ejections: evolution from the Sun to 1 AU and geo-effectiveness
- Long-stay host research supervisor of Mariel Lares-Martiz

  Non-linear terms in delta Scuti stars power spectra

  Sept 2019 Dec 2019

#### Master Theses, KU Leuven, Belgium

- **Supervisor** of Pieterjan Van Daele

  New algorithms to extract blended TESS photometry of massive stars

  Sept 2022 June 2023
- Examination committee member (reader) of Thijs Verhaeghe June 2022
- A target scheduling heuristic for CubeSpec
   Supervisor of Stijn Rutten
   Sept 2021 Sept 2022

- Examination committee member (reader) of Anne Daniels

  Permutation entropy and statistical complexity to characterise space plasmas
- June 2021

Sept 2018 - June 2019

- Examination committee member (reader) of Mariya Nizovkina

  June 2021

  Investigating the effect of microturbulent velocity on mass discrepancy in the binary system V380 Cyg
- Examination committee member (reader) of Tinatin Baratashvili June 2020
  On the effect of grid stretching and AMR on inner heliospheric solar wind and CME evolution simulations
- **Supervisor** of Joris Hermans Sept 2018 June 2019 *Testing stellar evolution with selected high-amplitude delta Scuti stars*
- **Supervisor** of Sven Nys

  Asteroseismic modelling of gravity modes in selected intermediate-mass stars

  Sept 2018 June 2019
- The influence of an interior magnetic field on gravity-mode oscillations of intermediate-mass stars

   Examination committee member (reader) of Mathias Michielsen

  June 2018
- Examination committee member (reader) of Mathias Michielsen

  Comparing oscillation frequencies of stars with a convective core: Impact of varying input physics

#### External Examiner of PhD and MSc theses

• Co-Supervisor of Jordan Van Beeck

- PhD thesis examiner (jury member) of Keegan Thomson-Paressant Sept 2024 Magnetism in  $\delta$  Scuti stars
- PhD thesis examiner (referee) of Abel de Burgos

  On the evolutionary nature of massive B-type supergiants: a modern empirical reappraisal using data from IACOB, Gaia and TESS

### Masters level Modules (MSc and MPhys)

- Guest Lecturer, *University of York, UK*Invited lecture on massive star evolution and asteroseismology for MPhys course of Dr. Emily Brunsden.
- Lecturer, KU Leuven, Belgium

  Sept 2022 Aug 2023

  Responsible person for delivering MSc Asteroseismology course (30 students; 6 ECTS).
- **Lecturer**, *KU Leuven*, *Belgium*Responsible person for delivering the annual MSc thesis defence preparation course (20+ students).
- Guest Lecturer, University of Innsbruck, Austria May 2021 Invited lecture on massive stars and asteroseismology for MSc course of Prof. Konstanze Zwintz.

#### **Undergraduate Modules (BSc)**

- Bachelor and master student projects, Newcastle University, UK
   Supervision of multiple bachelor and master student (group) projects.
- Bachelor and master student projects, *KU Leuven, Belgium*Supervision of multiple bachelor and master student (group) projects.

  Sept 2017 Aug 2023
- Module Examiner, KU Leuven, Belgium

  Examiner for the Bachelor science communication course.

  Sept 2017 Aug 2019

# ${ m XI.}$ Scientific Conferences and Workshops

Attendance of <b>52</b> international conferences and workshops.	
TASC8/KASC15 workshop, Porto, Portugal	15 – 19 July 2024
Owocki-Fest, Leuven, Belgium	8 – 12 July 2024
XShootU workshop, Leuven, Belgium	3 – 5 July 2024
B-fields conference, Tokyo, Japan	25 – 29 March 2024
BLOeM workshop, Virtual (hosted by KU Leuven)	5 – 6 March 2024
LENAH workshop, Newcastle, UK	12 – 14 Dec 2023
BRIDGCE/IReNA consortium meeting, Edinburgh, UK	11 - 13 Sept 2023
TASC7/KASC14, Honolulu, Hawai'i, USA	17 - 21 July 2023
National Astronomy Meeting (NAM), Cardiff, UK	3 – 7 July 2023
Lorentz Workshop, Leiden, the Netherlands	26 - 30 June 2023
SDSS-V/IReNA/CeNAM Science Festival, Leuven, Belgium	3 – 7 April 2023
VFTS, Garching, Germany	27 – 29 March 2023
TASC6/KASC13, Leuven, Belgium Chair of the LOC of the annual asteroseismic consortium meeting.	11 - 15 July 2022
IAUS361: Massive Stars Near and Far, Ballyconnell, Ireland	8 – 13 May 2022
KITP program, Santa Barbara, California, USA Invited participant and successful in securing a competitive FWO long stay abroad Invited speaker and panellist speaker for the conference between 11-18 November.	11  Oct - 17  Dec  2021 grant to cover all costs.
TESS SciCon II, Virtual (hosted by MIT, USA)	2 - 6 Aug 2021
BRITE-related Science Meeting, Virtual (hosted by Innsbruck University, Austria)	12 July 2021
<b>EAS 2021</b> , Virtual (hosted by Leiden University, the Netherlands) Co-Chair of the SOC of symposium 16 (S16) titled 'Massive stars: birth, rotation, and	28 June – 2 July 2021 ad chemical evolution'.
IAUS361: symposium on massive stars, Virtual (hosted by DIAS, Ireland)	3 – 7 May 2021
<b>OBA stars: Variability and Magnetic Fields</b> , <i>Virtual (hosted by St. Petersburg)</i> Invited speaker on the topic of asteroseismology of O and B stars.	26 – 30 April 2021
Pulsations in Multiple Systems, Virtual (hosted by University of Surrey, UK) Invited speaker on the topic of asteroseismology of OBAF stars.	18 - 22 Jan 2021
MOBSTER-1, Virtual (hosted by University of Delaware, USA) Co-Chair of the SOC for the first conference of the MOBSTER collaboration.	13 - 17 July 2020
<b>EAS 2020</b> , Virtual (hosted by Leiden University, the Netherlands) Chair of the SOC for the special session 5 (SS5) titled: 'New insights of angular mominteriors' at the EAS2020 conference.	29 June – 3 July 2020 entum transport in stellar
Stars and their Variability, Vienna, Austria Invited speaker on the topic of asteroseismology of O and B stars.	19 - 23 Aug 2019
TESS Sci Con I, MIT, Cambridge, USA	29 July – 2 Aug 2019
TASC5/KASC12, MIT, Cambridge, USA	22 – 26 July 2019

Stellar Hydro Days V, Exeter, UK	24 - 28 June 2019
STFC/MAMSIE workshop, Leuven, Belgium	2 – 4 April 2019
Kepler/K2 Sci Con V, Glendale, California, USA	4 – 8 March 2019
TESS data workshop, KU Leuven, Belgium	5 – 9 Nov 2018
STFC/MAMSIE workshop, Leuven, Belgium	29 – 31 Oct 2018
MASSIVE star meeting, Leuven, Belgium	4 – 6 Oct 2018
PHOST, Banyuls-sur-mer, France	3 - 7 Sept 2018
TASC4/KASC11, Aarhus University, Denmark Invited speaker on the topic of asteroseismology of A and F stars. Successful in secuparticipation grant to cover the travel costs.	8 - 13 July 2018 uring an FWO conference
Statistics workshop, KU Leuven, Belgium	11 June 2018
STFC/MAMSIE workshop, Newcastle University, UK	5 – 8 June 2018
Belgian contact group meeting, Brussels, Belgium	4 June 2018
MAMSIE/STFC workshop, KU Leuven, Belgium	14 – 16 March 2018
TESS data workshop, KU Leuven, Belgium	6 - 8 Dec 2017
MAMSIE/STFC workshop, KU Leuven, Belgium	12 – 15 Sept 2017
MESA Summer school, UCSB, California, USA	14 - 18 Aug 2017
TASC3/KASC10, University of Birmingham, UK	17 - 21 July 2017
<b>STARS2016</b> , <i>Windermere, UK</i> Chair of the LOC celebrating the scientific contributions of Prof. Donald Kurtz.	11 - 15 Sept 2016
TASC2/KASC9 workshop, Terceira-Açores, Portugal Successful in securing defrayment of registration fees.	27 June – 1 July 2016
National Astronomy Meeting (NAM), Nottingham University, UK	11 - 15 July 2016
STFC spectroscopy school, Queen's University Belfast, UK Successful in securing defrayment of registration and accommodation costs from STF	31 Aug – 4 Sept 2015 FC.
KASC8/TASC1 workshop, Aarhus University, Denmark Successful in securing an RAS travel grant for half the total costs.	15 - 19 June 2015
RAS specialist discussion meeting, RAS, London, UK Invited speaker on the topic of pulsations in delta Scuti stars observed by Kepler.	8 May 2015
K2 data workshop, (Virtual) Aarhus University, Denmark	10 – 11 Nov 2014
Ecole Evry Schatzman 2014, Roscoff, France Successful in securing defrayment of registration, accommodation and subsistence co	28 Sept – 3 Oct 2014 sts from CNRS.
CoRoT3/KASC7 meeting, Toulouse, France Successful in securing defrayment of registration fees.	6 – 11 July 2014
<b>Spectroscopy workshop</b> , <i>Aarhus University, Denmark</i> Successful in securing an RAS travel grant for half the total costs.	19 – 23 May 2014

# ${\rm XII}.$ Conference Talks, Seminars and Colloquia

Total of 10 invited and 18 contributed talks at international conferences, and 25 seminars/colloquia.

### **Conference Talks**

Nordita workshop (Invited), Stockholm, Sweden	August 2024
BRITE conference workshop (Two Contributed), Vienna, Austria	22 August 2024
• TASC8/KASC15 conference (Contributed), Porto, Portugal	19 July 2024
B-fields 2024 conference (Contributed), Tokyo, Japan	28 March 2024
• George Darwin Lecture (Invited), RAS, London, UK	12 Jan 2024
<ul> <li>BRIDGCE/IReNA meeting (Contributed), Edinburgh, UK</li> </ul>	11 Sept 2023
• TASC7/KASC14 (Contributed), Honolulu, Hawai'i, USA	18 July 2023
<ul> <li>National Astronomy Meeting (NAM) (Contributed), Cardiff, UK</li> </ul>	5 July 2023
• IAUS361: Massive Stars Near and Far (Contributed), Ballyconnell, Ireland	10 May 2022
<ul> <li>Probes of Transport in Stars (Invited), KITP, UCSB, USA</li> </ul>	15 Nov 2021
<ul> <li>Probes of Transport in Stars (Invited), KITP, UCSB, USA</li> </ul>	12 Oct 2021
• TESS SciCon II (Contributed), Virtual (hosted by MIT, USA)	3 Aug 2021
• BRITE-related Science Meeting (Invited), Virtual (hosted by Uni. Innsbruck, Austria)	12 July 2021
• IAUS361 symposium (Contributed), Virtual (hosted by DIAS, Ireland)	3 May 2021
• OBA stars: variability and magnetic fields (Invited), Virtual (hosted by St. Petersburg)	30 April 2021
• PIMMS workshop (Invited), Virtual (hosted by University of Surrey, UK)	18 Jan 2021
<ul> <li>Stars and their Variability (Invited), Vienna, Austria</li> </ul>	19 Aug 2019
• TESS Sci Con I (Contributed), MIT, Cambridge, USA	30 July 2019
• TASC5/KASC12 (Contributed), MIT, Cambridge, USA	23 July 2019
<ul> <li>Stellar Hydro Days V (Contributed), Exeter, UK</li> </ul>	26 June 2019
<ul> <li>Kepler/K2 Sci Con V (Contributed), Glendale, California, USA</li> </ul>	7 March 2019
<ul> <li>MASSIVE star meeting (Contributed), Leuven, Belgium</li> </ul>	4 Oct 2018
• PHOST conference (Contributed), Banyuls-sur-mer, France	6 Sept 2018
• TASC4/KASC11 workshop (Invited), SAC, Aarhus University, Denmark	13 July 2018
• STARS2016 conference (Contributed), Windermere, UK	14 Sept 2016
• KASC8/TASC1 workshop (Contributed), SAC, Aarhus University, Denmark	15 June 2015
<ul> <li>RAS specialist discussion meeting (Invited), RAS, London, UK</li> </ul>	8 May 2015
Seminars and Colloquia	
Innsbruck University, Austria	12 March 2024
HITS, Heidelberg, Germany	22 Nov 2023
Newcastle University, UK	1 Nov 2023
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Newcastle University, UK	25 Oct 2023
Amsterdam University, the Netherlands	10 May 2023
• ESO, Santiago, Chile	9 Feb 2023
• (Virtual) Thüringer Landessternwarte (TLS) Tautenburg, Germany	24 Nov 2022
Newcastle University, UK	2 Nov 2022
(Virtual) Chinese University of Hong Kong	2 June 2022
• (Virtual) MPA, Germany	20 April 2022
• (Virtual) University of Geneva, Switzerland	14 April 2022
• (Virtual) Sheffield University, UK	6 Oct 2021
KU Leuven, Belgium [YouTube recording]	1 Oct 2021
• (Virtual) Keele University, UK	19 May 2021
• (Virtual) Nicolaus Copernicus Astronomical Center, Poland	21 April 2021
• (Virtual) KITP, California, USA	16 Dec 2020
KU Leuven, Belgium	22 March 2019
Newcastle University, UK	6 June 2018
Université Libre de Bruxelles, Belgium	19 April 2018
KU Leuven, Belgium	2 March 2018
Royal Observatory of Belgium, Belgium	16 Nov 2017
<ul> <li>University of Central Lancashire (UCLan), UK</li> </ul>	15 June 2016
SAC, Aarhus University, Denmark	2 May 2016
• University of Central Lancashire (UCLan), UK	15 July 2015
Keele University, UK	4 Sept 2014

### XIII. Public Engagement and Outreach

Passionate and extensive experience in public engagement and outreach in science, but particularly in astronomy. Organised and assisted in 100+ outreach events for school students, amateur astronomer societies and the general public in the UK and Belgium, as well as virtual international activities for countries around the world. Demonstrable positive impact on thousands of people in terms of participant satisfaction and engagement with astronomy at various levels. Dedicated to continuing to provide high-calibre outreach activities throughout career. Examples of outreach and engagement activities to date include:

#### Newcastle University (2023 - date)

- Invited public lecture on asteroseismology at the University of York on 11 April 2024.
- Astronomy engagement (virtual) talk for 30+ undergraduate physics students in Kenya on 7 Feb 2024.
- Astronomy engagement talk for 300+ high-school students aged 14-16 on 31 Jan 2024.
- Participant of the Skype a Scientist program, with over a dozen online astronomy discussions with international participants, including school classrooms and families.

#### KU Leuven, Belgium (2017 - 2023)

- Teaching Fellow of the World Science Scholar program of the World Science Foundation for the academic year 2022–2023, in which 60+ gifted and talented high school students from across the globe were selected to expand their mathematical abilities with inspiring university-level topics led by world-renowned scientists.
- Participant of the Scientist@School program, and delivered over a dozen astronomy-themed talks and activities for local Belgian schools, with classes up to approximately 30 students aged 14–18.
- A series of short popular-science videos in collaboration with Huawei and Pint of Science Belgium for the '5-minute science you never knew' playlist of the 'What Makes it Tick?' YouTube channel.
- Interviewed for the Astronomer job profile for the UK prospects career advice website in 2021.
- Guest lecturer in stellar physics for the Vereniging Voor Sterrenkunde Zomerschool for 30–40 students aged 16–18 in August 2017, and again in 2018 and 2020.
- Co-author of (Dutch) article for the September 2019 issue of the popular astronomy magazine Heelal.
- Invited speaker at two Pint of Science events in Brussels on 7 and 21 May 2019, each with 150+ attendees.
- Workshops on space exploration and the solar system at the KU Leuven Kids University, for 30 students aged 8–13 on 5 May 2018 and 22 October 2022.
- Workshops on Exoplanets, Habitability and Host Star Variability for the Ladies@Science 2017 event, hosted at KU Leuven for 40 students aged 14–16 on 19 April 2017.

### UCLan (2013 - 2017)

Organised and supervised dozens of trips for members of the public to visit the 0.7-m telescope at Alston Observatory and gave an interactive tours of the night sky using the modern planetarium. Also visited over 20 primary and secondary schools to give talks and run astronomy-themed group activities for classes of about 30 students aged 6–16.

### XIV. Peer-Reviewed Scientific Publications

As of 5 August 2024, publication citation metrics:

Google scholar: 3877 citations and h-index of 36 NASA ADS: 3416 citations and h-index of 36

Total of 17 peer-reviewed papers as first-author and 76 as co-author (of which 20 as second or third author), which include 6 publications in *Nature*, *Nature Astronomy* and *Science*, and 3 invited single/dual author review papers.

Publications led by PhD and MSc students under my direct supervision are marked with a gold star (\*).

#### Submitted papers currently under review:

- H. Sana, T. Shenar, J. Bodensteiner, N. Britavskiy, N. Langer, D. J. Lennon, L. Mahy, I. Mandel, S. E. de Mink, L. R. Patrick, J. I. Villaseñor, M. Abdul-Masih, L. A. Almeida, F. Backs, S. R. Berlanas, M. Bernini-Peron, D. M. Bowman, V. A. Bronner, P. A. Crowther, K. Deshmukh, C. J. Evans, M. Fabry, M. Gieles, A. Gilkis, G. González-Torà, G. Gräfener, Y. Götberg, C. Hawcroft, V. Hénault-Brunet, A. Herrero, G. Holgado, A. de Koter, S. Janssens, C. Johnston, J. Josiek, S. Justham, V. M. Kalari, J. Klencki, J. Kubát, B. Kubátová, R. R. Lefever, J. Th. van Loon, B. Ludwig, J. Mackey, J. Maíz Apellániz, G. Maravelias, P. Marchant, T. Mazeh, A. Menon, M. Moe, F. Najarro, L. M. Oskinova, R. Ovadia, D. Pauli, M. Pawlak, V. Ramachandran, M. Renzo, D. F. Rocha, A. A. C. Sander, F. R. N. Schneider, A. Schootemeijer, E. C. Schösser, C. Schürmann, K. Sen, S. Shahaf, S. Simón-Díaz, L. A. C. van Son, M. Stoop, S. Toonen, F. Tramper, R. Valli, A. Vigna-Gómez, J. S. Vink, C. Wang, R. Willcox, (submitted), 'Evidence for a high fraction of close binaries at low metallicity'
- T. Shenar, J. Bodensteiner, H. Sana, P. A. Crowther, D. J. Lennon, M. Abdul-Masih, L. A. Almeida, F. Backs, S. R. Berlanas, M. Bernini-Peron, J. M. Bestenlehner, D. M. Bowman, V. A. Bronner, N. Britavskiy, A. de Koter, S. E. de Mink, K. Deshmukh, C. J. Evans, M. Fabry, M. Gieles, A. Gilkis, G. González-Torà, G. Gräfener, Y. Götberg, C. Hawcroft, V. Hénault-Brunet, A. Herrero, G. Holgado, S. Janssens, C. Johnston, J. Josiek, S. Justham, V. M. Kalari, Z. Z. Katabi, Z. Keszthelyi, J. Klencki, J. Kubát, B. Kubátová, N. Langer, R. R. Lefever, B. Ludwig, J. Mackey, L. Mahy, J. Maíz Apellániz, I. Mandel, G. Maravelias, P. Marchant, A. Menon, F. Najarro, L. M. Oskinova, R. Ovadia, L. R. Patrick, D. Pauli, M. Pawlak, V. Ramachandran, M. Renzo, D. F. Rocha, A. A. C. Sander, T. Sayada, F. R. N. Schneider, A. Schootemeijer, E. C. Schösser, C. Schürmann, K. Sen, S. Shahaf, S. Simón-Díaz, M. Stoop, J. Th. van Loon, S. Toonen, F. Tramper, R. Valli, L. A. C. van Son, A. Vigna-Gómez, J. I. Villaseñor, J. S. Vink, C. Wang, R. Willcox, (submitted, A&A), 'Binarity at LOw Metallicity (BLOeM). I. A spectroscopic VLT monitoring survey of massive stars in the SMC'
- D. M. Bowman, L. Bugnet (submitted, Encyclopaedia of Astrophysics), 'Asteroseismology'
- D. M. Bowman, P. Van Daele, M. Michielsen, T. Van Reeth, (submitted, A&A), 'Photometric detection of internal gravity waves in upper main-sequence stars. IV. Comparable SLF variability in SMC, LMC and Galactic massive stars'
- R. Ratnasingam, P. V. F. Edelmann, **D. M. Bowman**, T. M. Rogers, (submitted, ApJ Letters), 'On the geometry of the near-core magnetic field in massive stars'

#### Published articles:

- E. Farrell, G. Buldgen, G. Meynet, P. Eggenberger, M.-A. Dupret, **D. M. Bowman**, (2024), A&A, Volume 686, A267, 'A method for non-linear inversion of the stellar structure applied to gravity mode pulsators' [ADS link]
- W. R. Thompson, F. Herwig, P. R. Woodward, H. Mao, P. Denissenkov, **D. M. Bowman**, S. Blouin, (2024), MNRAS, Volume 531, Issue 1, 1316–1337, '3D hydrodynamic simulations of massive main-sequence stars. II. Convective excitation and spectra of internal gravity waves' [ADS link]

- A. J. Frost, H. Sana, L. Mahy, G. Wade, J. Barron, J.-B. Le Bouquin, A. Mérand, F. R. N. Schneider, T. Shenar, R. H. Barba, **D. M. Bowman**, M. Fabry, A. Farhang, P. Marchant, N. I. Morrell, J. V. Smoker, (2024), Science, Volume 384, Issue 6692, 214–217, 'A magnetic massive star has experienced a stellar merger' [ADS link]
- A. Tkachenko, K. Pavlovski, N. Serebriakova, D. M. Bowman, L. IJspeert, S. Gebruers, J. Southworth, (2024), A&A, Volume 683, A252, 'Observational mapping of the mass discrepancy in eclipsing binaries. Selection of the sample and its photometric and spectroscopic properties' [ADS link]
- K. Zwintz, A. Pigulski, R. Kuschnig, G. A. Wade, G. Doherty, M. Earl, C. Lovekin, M. Müllner, S. Piché-Perrier, T. Steindl, P. G. Beck, K. Bicz, D. M. Bowman, G. Handler, B. Pablo, A. Popowicz, T. Różański, P. Mikołajczyk, D. Baade, O. Koudelka, A. F. J. Moffat, C. Neiner, P. Orleański, R. Smolec, N. St. Louis, W. W. Weiss, M. Wenger, E. Zocłońska, (2024), A&A, Volume 683, A49, 'Catalogue of BRITE-Constellation. I. Fields 1 to 14 (November 2013 April 2016)' [ADS link]
- D. L. Holdsworth, M. S. Cunha, M. Lares-Martiz, D. W. Kurtz, V. Antoci, S. Barceló Forteza, P. De Cat, A. Derekas, C. Kayhan, D. Ozuyar, M. Skarka, D. R. Hey, F. Shi, D. M. Bowman, O. Kobzar, A. Ayala Gómez, Zs. Bognár, D. L. Buzasi, M. Ebadi, L. Fox-Machado, A. García Hernández, H. Ghasemi, J. A. Guzik, G. Handler, A. Hasanzadeh, R. Jayaraman, V. Khalack, O. Kochukhov, C. C. Lovekin, P. Mikołajczyk, D. Mkrtichian, S. J. Murphy, E. Niemczura, B. G. Olafsson, J. Pascual-Granado, E. Paunzen, N. Posiłek, A. Ramón-Ballesta, H. Safari, A. Samadi-Ghadim, B. Smalley, Á. Sódor, I. Stateva, J. C. Suárez, R. Szabó, T. Wu, E. Ziaali, W. Zong, (2024), MNRAS, Volume 527, Issue 4, 9548–9580, 'TESS Cycle 2 observations of roAp stars with 2-min cadence data' [ADS link]

#### 2023: 2 first author and 11 co-author publications

- D. M. Bowman, (2023), Astrophysics and Space Science, Volume 368, Issue 12, 107, 'Making waves in massive star asteroseismology' [ADS link] (Invited review)
- D. M. Bowman, J. Van Saders, J. Vink, (2023), Galaxies, Volume 11, Issue 5, 94, 'The Structure and Evolution of Stars: Introductory Remarks' [ADS link]
- T. Shenar, G. Wade, P. Marchant, S. Bagnulo, J. Bodensteiner, **D. M. Bowman**, A. Gilkis, N. Langer, A. Nicholas-Chené, L. Oskinova, T. Van Reeth, H. Sana, N. St-Louis, A. Soares de Oliveira, H. Todt, S. Toonen, (2023), Science, Volume 381, Issue 6659, 761–765, 'A massive helium star with a sufficiently strong magnetic field to form a magnetar' [ADS link]
- N. Serebriakova, A. Tkachenko, S. Gebruers, D. M. Bowman, T. Van Reeth, L. Mahy, S. Burssens, L. IJspeert, H. Sana, C. Aerts, (2023), A&A Volume 676, A85, 'The ESO UVES/FEROS Large Programs of TESS OB pulsators. I. Global stellar parameters from high-resolution spectroscopy' [ADS link]
- R. Monier, **D. M. Bowman**, Y. Lebreton, M. Deal, (2023), AJ, Volume 166, Issue 2, 73 'The unexpected optical and ultraviolet variability of the standard star α Sex (HD 87887)' [ADS link]
- R. Monier, E. Niemczura, D. W. Kurtz, S. Rappaport, D. M. Bowman, S. J. Murphy, Y. Lebreton, R. Stuik, M. Deal, T. Merle, T. Kiliçoğlu, M. Gebran, E. Le Ster, (2023), AJ, Volume 166, Issue 2, 54, 'The surface composition of six newly discovered chemically peculiar stars. Comparison to the HgMn stars μ Lep and β Scl and the superficially normal B star ν Cap' [ADS link]
- A. I. Henriksen, V. Antoci, H. Saio, F. Grundahl, H. Kjeldsen, T. Van Reeth, D. M. Bowman, P. I. Pápics, P. de Cat, J. Kruger, and the SONG team, (2023), MNRAS, Volume 524, Issue 3, 4196–4211, 'Unresolved Rossby and gravity modes in 214 A and F stars showing rotational modulation' [ADS link]
- J. S. Vink, A. Mehner, P. A. Crowther, A. Fullerton, M. Garcia, F. Martins, N. Morrell, L. M. Oskinova, N. St-Louis, A. ud-Doula, A.A.C. Sander, H. Sana, J.-C. Bouret, B. Kubátová, P. Marchant, L. P. Martins, A. Wofford, J. Th. van Loon, O. Grace Telford, Y. Götberg, D. M. Bowman, C. Erba, V. M. Kalari, M. Abdul-Masih, T. Alkousa, F. Backs, C. L. Barbosa, S.R. Berlanas, M. Bernini-Peron, J. M. Bestenlehner, R. Blomme, J. Bodensteiner, S. A. Brands, C. J. Evans, A. David-Uraz, F. A. Driessen, K. Dsilva, S. Geen, V. M. A. Gómez-González, L. Grassitelli, W.-R. Hamann, C. Hawcroft, A. Herrero, E. R. Higgins, D. J. Hillier,

- R. Ignace, A. G. Istrate, L. Kaper, N. D. Kee, C. Kehrig, Z. Keszthelyi, J. Klencki, A. de Koter, R. Kuiper, E. Laplace, C. J. K. Larkin, R. R. Lefever, C. Leitherer, L. Mahy, J. Maíz Apellániz, G. Maravelias, W. Marcolino, A. F. McLeod, S. E. de Mink, F. Najarro, M. S. Oey, T. N. Parsons, D. Pauli, M. G. Pedersen, R.K. Prinja, V. Ramachandran, M. C. Ramírez-Tannus, G. N. Sabhahit, A. Schootemeijer, S. Reyero Serantes, T. Shenar, G. S. Stringfellow, N. Sudnik, F. Tramper, L. Wang, (2023), A&A, Volume 675, A154, 'X-Shooting ULLYSES: Massive Stars at low metallicity. I. Survey Description' [ADS link]
- N. Vernekar, A. Subramaniam, V. V. Jadhav, **D. M. Bowman**, (2023), MNRAS, Volume 524, Issue 1, 1360–1373, 'Photometric variability of blue straggler stars in M67 with TESS and K2' [ADS link]
- S. Burssens\*, **D. M. Bowman**, M. Michielsen, S. Simón-Díaz, C. Aerts, V. Vanlaer, G. Banyard, N. Nardetto, R. H. D. Townsend, G. Handler, J. S. G. Mombarg, R. Vanderspek, G. Ricker, (2023), Nature Astronomy, Volume 7, 913–930, 'A calibration point for stellar evolution from massive star asteroseismology' [ADS link]
- D. Pauli, L. M. Oskinova, W.-R. Hamann, D. M. Bowman, H. Todt, T. Shenar, A. A. C. Sander, C. Erba, V. M. A. Gómez-González, C. Kehrig, J. Klencki, R. Kuiper, A. Mehner, S. E. de Mink, M. S. Oey, V. Ramachandran, A. Schootemeijer, S. Reyero Serantes, A. Wofford, (2023), A&A, Volume 673, A40 'Spectroscopic and evolutionary analyses of the binary system AzV 14 outline paths towards the WR stage at low-metallicity' [ADS link]
- T. Van Reeth, C. Johnston, J. Southworth, J. Fuller, D. M. Bowman, L. Poniatowski, J. Van Beeck, (2023), A&A, Volume 671, A121 'Tidally perturbed g-mode pulsations in a sample of close eclipsing binaries' [ADS link]
- C. Johnston, A. Tkachenko, T. Van Reeth, **D. M. Bowman**, K. Pavlovski, H. Sana, S. Sekaran, (2023), A&A, Volume 670, A167, 'Tidal perturbations and geometric effects on the pulsations in the hierarchical triple system U Gru' [ADS link]

#### 2022: 2 first author and 12 co-author publications

- D. M. Bowman, T. Z. Dorn-Wallenstein, (2022), A&A, Volume 668, A134, 'Photometric detection of internal gravity waves in upper main-sequence stars. III. Comparison of amplitude spectrum fitting and Gaussian process regression using CELERITE2' [ADS link]
- J. Southworth, **D. M. Bowman**, (2022), The Observatory, Volume 142, 161-173, 'Rediscussion of eclipsing binaries. Paper X. The pulsating B-type system V1388 Orionis' [ADS link]
- J. Tayar, F. D. Moyano, M. Soares-Furtado, A. Escorza, M. Joyce, S. L. Martell, R. A. García, S. N. Breton, S. Mathis, S. Mathur, V. Delsanti, S. Kiefer, S. Reffert, D. M. Bowman, T. Van Reeth, S. Shetye, C. Gehan, S. K. Grunblatt, (2022), ApJ, Volume 940, Issue 1, 23, 'Spinning up the Surface: Evidence for Planetary Engulfment or Unexpected Angular Momentum Transport?' [ADS link]
- O. Kobzar, V. Khalack, D. Bohlender, G. Mathys, M. Shultz, D. M. Bowman, E. Paunzen, C. Lovekin, A. David-Uraz, J. Sikora, P. Lampens, O. Richard, (2022), MNRAS, Volume 517, Issue 4, 5340–5357, 'Analysis of eight magnetic chemically peculiar stars with rotational modulation' [ADS link]
- S. Gebruers, A. Tkachenko, **D. M. Bowman**, T. Van Reeth, S. Burssens, L. IJspeert, L. Mahy, I. Straumit, M. Xiang, H.-W. Rix, C. Aerts, (2022), A&A, Volume 665, A36, 'Analysis of high-resolution FEROS spectroscopy for a sample of variable B-type stars assembled from TESS photometry' [ADS link]
- L. Mahy, H. Sana, T. Shenar, M. Abdul-Masih, G. Banyard, J. Bodensteiner, D. M. Bowman, K. Dsilva, M. Fabry, C. Hawcroft, N. Langer, P. Marchant, T. Van Reeth, C. Eldridge, (2022), A&A, Volume 664 A159, 'Identifying quiescent compact objects in massive Galactic single-lined spectroscopic binaries' [ADS link]
- Z. T. Spetsieri, P. Boumis, A. Chiotellis, S. Akras, S. Derlopa, S. Shetye, D. M.-A. Meyer, D. M. Bowman,
   V. V. Gvaramadze, (2022), MNRAS, Volume 515, Issue 1, 1544–1556, 'Discovery of an optical cocoon tail behind the runaway HD 185806' [ADS link]
- J. A. Toalá, D. M. Bowman, T. Van Reeth, H. Todt, K. Dsilva, T. Shenar, G. Koenigsberger, S. Estrada-Dorado, L. M. Oskinova, W.-R. Hamann, (2022), MNRAS, Volume 514, Issue 1, 2269–2277, 'Multiple variability time-scales of the early nitrogen-rich Wolf-Rayet star WR7' [ADS link]

- J. Southworth, **D. M. Bowman**, (2022), MNRAS, Volume 513, Issue 3, pp. 3191-3209, 'High-mass pulsators in eclipsing binaries observed using TESS' [ADS link]
- T. Van Reeth, J. Southworth, J. Van Beeck, **D. M. Bowman**, (2022), A&A, Volume 659, A177, 'V456 Cyg: an eclipsing binary with tidally perturbed g-mode pulsations' [ADS link]
- D. Lecoanet, D. M. Bowman, T. Van Reeth, (2022), MNRAS Letters, Volume 512, Issue 1, L16-L20, 'Asteroseismic inference of the near-core magnetic field strength in the main-sequence B star HD 43317' [ADS link]
- D. M. Bowman, B. Vandenbussche, H. Sana, A. Tkachenko, G. Raskin, T. Delabie, B. Vandoren, P. Royer, S. Garcia, T. Van Reeth, and the CubeSpec collaboration, (2022), A&A, Volume 658, A96, 'The CubeSpec space mission. I. Asteroseismology of massive stars from time-series optical spectroscopy: Science requirements and target list prioritisation' [ADS link]
- K. Pavlovski, C. A. Hummel, A. Tkachenko, A. Derviçoğlu, C. Kayhan, R. T. Zavala, D. J. Hutter, C. Tycner, T. Şahin, J. Audenaert, R. Baeyens, J. Bodensteiner, D. M. Bowman, S. Gebruers, N. E. Jannsen, J. S. G. Mombarg, (2022), A&A, Volume 658, A92, 'Dynamical parallax, physical parameters and evolutionary status of the components of the bright eclipsing binary α Draconis' [ADS link]
- A. Elliott, N. D. Richardson, H. Pablo, A. F. J. Moffat, D. M. Bowman, N. Ibrahim, G. Handler, C. Lovekin, A. Popowicz, N. St-Louis, G. A. Wade, K. Zwintz, (2022), MNRAS, Volume 509, Issue 3, 4246–4255, 'Five years of BRITE-Constellation photometry of the prototypical luminous blue variable P Cygni: constraining the stochastic low-frequency variability' [ADS link]

### 2021: 2 first author and 12 co-author publications

- D. M. Bowman and M. Michielsen, (2021), A&A, Volume 656, A158, 'Towards a systematic treatment of observational uncertainties in forward asteroseismic modelling of gravity-mode pulsators' [ADS link]
- J. Van Beeck\*, **D. M. Bowman**, M. G. Pedersen, T. Van Reeth, T. Van Hoolst, C. Aerts, (2021), A&A, Volume 655, A59, 'Detection of non-linear resonances among gravity modes of slowly pulsating B stars: Results from five iterative pre-whitening strategies' [ADS link]
- J. Audenaert, J. S. Kuszlewicz, R. Handberg, A. Tkachenko, D. Armstrong, M. Hon, R. Kgoadi, M. N. Lund, K. J. Bell, L. Bugnet, **D. M. Bowman**, C. Johnston, R. A. García, D. Stello, L. Molnár, E. Plachy, D. Buzasi, C. Aerts, and the T'DA collaboration, (2021), AJ, Volume 162, Issue 5, 209, 'TESS Data for Asteroseismology (T'DA) Stellar Variability Classification Pipeline: Set-Up and Application to the Kepler Q9 Data' [ADS link]
- D. L. Holdsworth, M. S. Cunha, D. W. Kurtz, V. Antoci, D. R. Hey, D. M. Bowman, O. Kobzar, D. L. Buzasi, O. Kochukhov, E. Niemczura, D. Ozuyar, F. Shi, R. Szabó, A. Samadi-Ghadim, Zs. Bognár, L. Fox-Machado, V. Khalack, M. Lares-Martiz, C. C. Lovekin, P. Mikołajczyk, D. Mkrtichian, J. Pascual-Granado, E. Paunzen, T. Richey-Yowell, Á. Sódor, J. Sikora, T. Z. Yang, E. Brunsden, A. David-Uraz, A. Derekas, A. García Hernández, J. A. Guzik, N. Hatamkhani, R. Handberg, T. S. Lambert, P. Lampens, S. J. Murphy, R. Monier, K. R. Pollard, P. Quitral-Manosalva, A. Ramón-Ballesta, B. Smalley, I. Stateva, R. Vanderspek, (2021), MNRAS, Volume 506, Issue 1, 1073–1110, 'TESS Cycle 1 observations of roAp stars with 2-min cadence data' [ADS link]
- A. David-Uraz, M. E. Shultz, V. Petit, D. M. Bowman, C. Erba, R. A. Fine, C. Neiner, H. Pablo, J. Sikora, A. ud-Doula, G. A. Wade, (2021), MNRAS, Volume 504, Issue 4, 4841–4849, 'MOBSTER IV. Detection of a new magnetic B-type star from follow-up spectropolarimetric observations of photometrically selected candidates' [ADS link]
- D. M. Bowman, J. Hermans, J. Daszyńska-Daszkiewicz, D. L. Holdsworth, A. Tkachenko, S. J. Murphy, B. Smalley, D. W. Kurtz, (2021), MNRAS, Volume 504, Issue 3, 4039–4053 *'KIC 5950759: a high-amplitude \delta Sct star with amplitude and frequency modulation near the terminal age main sequence'* [ADS link]

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- B. Buysschaert, C. Neiner, A. J. Martin, C. Aerts, D. M. Bowman, M. E. Oksala, T. Van Reeth, (2018), MNRAS, Volume 478, Issue 2, 2777–2793, 'Detection of magnetic fields in chemically peculiar stars observed with the K2 space mission' [ADS link]
- B. Buysschaert, C. Aerts, D. M. Bowman, C. Johnston, T. Van Reeth, M. G. Pedersen, C. Neiner, (2018), A&A, Volume 616, A77, 'Forward seismic modeling of the pulsating magnetic B-type star HD 43317' [ADS link]
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#### **2016:** 1 first author and 1 co-author publications

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- E. Niemczura, S. J. Murphy, B. Smalley, K. Uytterhoeven, A. Pigulski, H. Lehmann, **D. M. Bowman**, G. Catanzaro, E. van Aarle, S. Bloemen, M. Briquet, P. De Cat, D. Drobek, L. Eyer, J. F. S. Gameiro, N. Gorlova, K. Kamiński, P. Lampens, P. Marcos-Arenal, P. I. Pápics, B. Vandenbussche, H. Van Winckel, M. Stęślicki, M. Fagas, (2015), MNRAS, Volume 450, Issue 3, 2764–2783, *'Spectroscopic survey of Kepler stars. I. HERMES/Mercator observations of A- and F-type stars'* [ADS link]
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### XV. Monographs and Book Chapters

• D. M. Bowman, (2017), Springer Theses, Springer International Publishing AG (Springer Nature), 'Amplitude Modulation of Pulsation Modes in Delta Scuti Stars', DOI: 10.1007/978-3-319-66649-5, ISBN: 978-3-319-66648-8

#### XVI. Thesis

• D. M. Bowman, (2016), PhD Thesis, Jeremiah Horrocks Institute, University of Central Lancashire, UK, 'Amplitude modulation and energy conservation of pulsation modes in delta Scuti stars', URL: http://clok.uclan.ac.uk/18788/

### **XVII.** Conference Proceedings

- D. Lecoanet, D. M. Bowman, T. Van Reeth, I. Freeman, (2022), 'Internal Gravity Waves Magnetic Field Interactions', American Geophysical Union Fall Meeting 2022, held in Chicago, Illinois, USA, 12-16 December 2022, id. NG13A-08 [ADS link]
- H. Sana, M. Abdul-Masih, G. Banyard, J. Bodensteiner, D. M. Bowman, K. Dsilva, C. Eldridge, M. Fabry, A. J. Frost, C. Hawcroft, S. Janssens, L. Mahy, P. Marchant, N. Langer, T. Van Reeth, K. Sen, T. Shenar, 'The Nature of Unseen Companions in Massive Single-Line Spectroscopic Binaries', International Astronomical Union Proceedings Series for the IAUS361: Massive Stars Near and Far held 9–13 May 2022 in Ballyconnell, Ireland (in press) [ADS link]
- B. Vandenbussche, G. Raskin, P. Royer, D. M. Bowman, H. Sana, A. Tkachenko, J. Goris, J. Schuermans, D. Vandepitte, J. De Maeyer, F. Heylen, W. De Munter, M. Kempenaers, J. Lanting, B. Vandoren, T. Delabie, P. Saey, A. Verhoeven, V. Moreau, E. Renotte, P. Davidsen, K. Kaas, (2022), 'The CubeSpec mission', Proc. SPIE 12180, Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave, 1218007, [ADS link]
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### XVIII. Varia Other Publications

- H. Rauer, C. Aerts, J. Cabrera, et al. (total of over 800 co-authors, including D. M. Bowman, in the PLATO consortium), 'The PLATO Mission' [ADS link]
- **D. M. Bowman**, (2024), Astronomy & Geophysics, Volume 65, Issue 2, 2.20–2.25, 'Pulsating massive stars' [ADS link]
- V. Mainieri, R. I. Anderson, J. Brinchmann, et al. (total of over 200 co-authors, including **D. M. Bowman**, in the WST consortium), (2024), 'The Wide-field Spectroscopic Telescope (WST) Science White Paper' [ADS link]
- J. S. Vink, P. Crowther, A. Fullerton, M. Garcia, F. Martins, N. Morrell, L. Oskinova, N. St. Louis, A. ud-Doula, A. Sander, H. Sana, J.-C. Bouret, B. Kubatova, P. Marchant, L. P. Martins, A. Wofford, J. van Loon, G. O. Telford, Y. Götberg, **D. M. Bowman**, C. Erba, V. Kalari, The XShootU Collaboration, (2024), ESO The Messenger, Volume 192, 16-21, 'Xshooting ULLYSES: Massive Stars at Low Metallicity' [ADS link]
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- RAS ECN committee, M. Maunder, A. O'Brien, J. Reid, D. M. Bowman, F. Richards, S. Gough-Kelly, (2022), Astronomy & Geophysics, Volume 63, Issue 3, 3.22–3.27, 'Generation COVID: a survey on the impact of the pandemic on early-career researchers' [ADS link]
- RAS ECN committee, D. M. Bowman, F. Richards, M. Maunder, A. O'Brien, D. Boubert, (2022), Astronomy
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