

# Dominic M. Bowman

PhD, MSci. (Hons), FRAS, MInstP

Reader in Astrophysics and Royal Society University Research Fellow

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## I. Professional Profile

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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](#). Moved to [KU Leuven](#) in Belgium in 2017 as a postdoctoral researcher, and in 2020 awarded a competitive FWO research fellowship. Over 90 peer-reviewed publications, with several 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

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### 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

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### 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 [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 [MAMSIE; 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.

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

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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:

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#### George Darwin Lectureship, RAS

Jan 2023

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

#### Henri Vanderlinden Prize, Royal Flemish Academy

Dec 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

May 2020

Prestigious and highly-competitive prize from KU Leuven's [Research Council](#) awarded to one postdoc in STEM for research excellence and an upwards career trajectory, which included **€20,000** of research funding.

#### Springer Thesis Award

Oct 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:

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#### 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.

#### 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 asteroeismology. 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 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 asteroeismology 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 **€6000** [grant number: V411621N].

#### Conference Organisation

Sept 2015

Successful funding applications of **£3000** from the Royal Astronomical Society (RAS) and **£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, with a combined total of approximately **€5000**.

## V. Conference Organisation

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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 TASC8/KASC15 conference of the asteroseismic community.

**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.

**TASC6/KASC13**, *Leuven, Belgium* 11 – 15 July 2022  
Chair of the LOC for the TASC6/KASC13 conference of the asteroseismic community, which was held in Leuven, had 200 in-person and 100+ online participants, and a budget of €70,000. Postponed from 2020 to 2022 because of the COVID-19 pandemic.

**EAS 2021**, *Virtual (hosted by Leiden University, the Netherlands)* 28 June – 2 July 2021  
Co-Chair of the SOC of the symposium titled 'Massive stars: birth, rotation, and chemical evolution' at the EAS 2021 meeting, which had more than 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 more than 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

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**IOP workshop**, *Northumbria University* 8 Dec 2023  
Full-day training workshop from higher education and early-career groups of the Institute of Physics (IOP) on best practices of PhD student 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 anti-racism initiatives in academia.

**Sex and Gender Dimensions in Frontier Research**, *Virtual (hosted by ERCEA)* 16 Nov 2020  
Seminars and training sessions on diversity initiatives in academia.

**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. Successful application for an STFC travel grant for the costs of attending.

**Media training for outreach**, *Royal Society, London, UK* 7 Oct 2015  
Training sessions on various media-related aspects of outreach activities. Successful application for an STFC bursary for the costs of attending.

## VII. International Responsibilities, Committees and Service

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### 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.

### WG Chair, Arago space mission

Jan 2022 – date

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.

### Associate Editor, Frontiers

Feb 2021 – date

Editorial board member and [Associate Editor](#) for Stellar and Solar Physics within the journals of *Frontiers in Astronomy and Space Sciences* and *Frontiers in Physics*.

### 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 [SAAO instrument team](#) 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, and Frontiers in Astronomy and Space Science.

### Previous Responsibilities:

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#### 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. Scientific Organisation Membership

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### International Astronomical Union

Jan 2020 – date

Elected a junior 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

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

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Successful telescope proposals as PI and co-PI with competitive ground-based observatories totalling more than **2000 hours**, 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

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 the La Silla observatory, ESO.

- PI of (visitor mode) programme obtaining time-series spectroscopy of the pulsating massive star zeta Oph with ESPRESSO (*113.26B9; 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 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**

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**

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 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**

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**

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



## X. Teaching and Supervision Experience

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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 3 went onto complete a PhD), and member of a further **5** MSc thesis examination committees.

### PhD Theses, Newcastle University, UK

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- **Supervisor** of Ankur Kalita formal start date: April 2024  
*Asteroseismology of massive stars*
- **Supervisor** of Federica Nardini Jan 2024 – date  
*Asteroseismology of massive binary systems*

### PhD Theses, KU Leuven, Belgium

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- Progress and examination committee (jury) member of Joris Hermans Sept 2019 – Nov 2023  
*Understanding the influence of cooling curves and flow on thermal instability*
- **Co-Supervisor** of Jordan Van Beeck Sept 2019 – Sept 2023  
*Asteroseismology of Kepler B stars: internal magnetism and nonlinear mode coupling*
- Examination committee (jury) member of Mathias Michielsens 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 Sept 2019 – Dec 2019  
*Non-linear terms in delta Scuti stars power spectra*

### Master Theses, KU Leuven, Belgium

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- **Supervisor** of Pieterjan Van Daele Sept 2022 – June 2023  
*New algorithms to extract blended TESS photometry of massive stars*
- Examination committee member (reader) of Thijs Verhaeghe June 2022  
*A target scheduling heuristic for CubeSpec*
- **Supervisor** of Stijn Rutten Sept 2021 – Sept 2022  
*A new user-friendly aperture photometry pipeline for MAIA: variability in pulsating stars*
- **Supervisor** of Nagaraj Vernekar Sept 2020 – Sept 2021  
*On the photometric and spectroscopic variability of Be stars: the case of HD 93683*
- Examination committee member (reader) of Anne Daniels June 2021  
*Permutation entropy and statistical complexity to characterise space plasmas*
- 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 Sept 2018 – June 2019  
*Asteroseismic modelling of gravity modes in selected intermediate-mass stars*
- **Co-Supervisor** of Jordan Van Beeck 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  
*Comparing oscillation frequencies of stars with a convective core: Impact of varying input physics*

## Master Courses and Modules

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- **Lecturer**, *KU Leuven, Belgium* Sept 2022 – Aug 2023  
Responsible person for delivering MSc Asteroseismology course (30 students; 6 ECTS).
- **Lecturer**, *KU Leuven, Belgium* Sept 2019 – Aug 2023  
Responsible person for delivering the annual MSc thesis defence preparation course (20+ students).
- **Guest Lecturer**, *University of Innsbruck, Austria* May 2021  
Lecture on massive stars for asteroseismology course of Prof. Konstanze Zwintz.

## Undergraduate (BSc) Courses and Modules

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- **Bachelor and master student projects**, *Newcastle University, UK* Sept 2023 – date  
Supervision of multiple bachelor and master student (group) projects.
- **Bachelor and master student projects**, *KU Leuven, Belgium* Sept 2017 – Aug 2023  
Supervision of multiple bachelor and master student (group) projects.
- **Module Examiner**, *KU Leuven, Belgium* Sept 2017 – Aug 2019  
Examiner for the Bachelor science communication and MSc Asteroseismology courses.
- **Lecturer**, *UCLan, UK* Sept 2016 – Jan 2017  
Responsible person for delivering first-year undergraduate 'Introduction to Statistics' (MA1861; 30 students; 10 credits), 'Stellar Structure and Evolution' (AA1051; 25 students; 10 credits), and second-year astronomy laboratories at UCLan's Alston observatory (AP2060; 25 students; 10 credits).



## XI. Scientific Conferences and Workshops

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Attendance of **47** international conferences and workshops.

<b>LENAH workshop</b> , <i>Newcastle, UK</i>	12 – 14 Dec 2023
<b>BRIDGCE/IReNA consortium meeting</b> , <i>Edinburgh, UK</i>	11 – 13 Sept 2023
<b>TASC7/KASC14</b> , <i>Honolulu, Hawai'i, USA</i>	17 – 21 July 2023
<b>National Astronomy Meeting (NAM)</b> , <i>Cardiff, UK</i>	3 – 7 July 2023
<b>Lorentz Workshop</b> , <i>Leiden, the Netherlands</i>	26 – 30 June 2023
<b>SDSS-V/IReNA/CeNAM Science Festival</b> , <i>Leuven, Belgium</i>	3 – 7 April 2023
<b>VFTS</b> , <i>Garching, Germany</i>	27 – 29 March 2023
<b>TASC6/KASC13</b> , <i>Leuven, Belgium</i>	11 – 15 July 2022
Chair of the LOC of the annual asteroseismic consortium meeting.	
<b>IAUS361: Massive Stars Near and Far</b> , <i>Ballyconnell, Ireland</i>	8 – 13 May 2022
<b>KITP program</b> , <i>Santa Barbara, California, USA</i>	11 Oct – 17 Dec 2021
Invited participant and successful in securing a competitive FWO long stay abroad grant to cover all costs. Invited panellist speaker for the conference between 11-18 November.	
<b>TESS SciCon II</b> , <i>Virtual (hosted by MIT, USA)</i>	2 – 6 Aug 2021
<b>BRITE-related Science Meeting</b> , <i>Virtual (hosted by Innsbruck University, Austria)</i>	12 July 2021
<b>EAS 2021</b> , <i>Virtual (hosted by Leiden University, the Netherlands)</i>	28 June – 2 July 2021
Co-Chair of the SOC of symposium 16 (S16) titled 'Massive stars: birth, rotation, and chemical evolution'.	
<b>IAUS361: symposium on massive stars</b> , <i>Virtual (hosted by DIAS, Ireland)</i>	3 – 7 May 2021
<b>OBA stars: Variability and Magnetic Fields</b> , <i>Virtual (hosted by St. Petersburg)</i>	26 – 30 April 2021
Invited speaker on the topic of asteroseismology of O and B stars.	
<b>Pulsations in Multiple Systems</b> , <i>Virtual (hosted by University of Surrey, UK)</i>	18 – 22 Jan 2021
Invited speaker on the topic of asteroseismology of OBAF stars.	
<b>MOBSTER-1</b> , <i>Virtual (hosted by University of Delaware, USA)</i>	13 – 17 July 2020
Co-Chair of the SOC for the first conference of the MOBSTER collaboration.	
<b>EAS 2020</b> , <i>Virtual (hosted by Leiden University, the Netherlands)</i>	29 June – 3 July 2020
Chair of the SOC for the special session 5 (SS5) titled: 'New insights of angular momentum transport in stellar interiors' at the EAS2020 conference.	
<b>Stars and their Variability</b> , <i>Vienna, Austria</i>	19 – 23 Aug 2019
Invited speaker on the topic of asteroseismology of O and B stars.	
<b>TESS Sci Con I</b> , <i>MIT, Cambridge, USA</i>	29 July – 2 Aug 2019
<b>TASC5/KASC12</b> , <i>MIT, Cambridge, USA</i>	22 – 26 July 2019
<b>Stellar Hydro Days V</b> , <i>Exeter, UK</i>	24 – 28 June 2019
<b>STFC/MAMSIE workshop</b> , <i>Leuven, Belgium</i>	2 – 4 April 2019
<b>Kepler/K2 Sci Con V</b> , <i>Glendale, California, USA</i>	4 – 8 March 2019
<b>TESS data workshop</b> , <i>KU Leuven, Belgium</i>	5 – 9 Nov 2018
<b>STFC/MAMSIE workshop</b> , <i>Leuven, Belgium</i>	29 – 31 Oct 2018

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

## XII. Conference Talks, Seminars and Colloquia

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Total of **9 invited** and **14 contributed** talks at international conferences, and **25** seminars/colloquia.

### Conference Talks

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- George Darwin Lecture (**Invited**), *RAS, London, UK* 12 Jan 2024
- BRIDGCE/IReNA meeting (Contributed), *Edinburgh, UK* 11 Sept 2023
- TASC7/KASC14 (Contributed), *Honolulu, Hawai'i, USA* 18 July 2023
- National Astronomy Meeting (NAM) (Contributed), *Cardiff, UK* 5 July 2023
- IAUS361: Massive Stars Near and Far (Contributed), *Ballyconnell, Ireland* 10 May 2022
- Probes of Transport in Stars (**Invited**), *KITP, UCSB, USA* 15 Nov 2021
- Probes of Transport in Stars (**Invited**), *KITP, UCSB, USA* 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
- Stars and their Variability (**Invited**), *Vienna, Austria* 19 Aug 2019
- TESS Sci Con I (Contributed), *MIT, Cambridge, USA* 30 July 2019
- TASC5/KASC12 (Contributed), *MIT, Cambridge, USA* 23 July 2019
- Stellar Hydro Days V (Contributed), *Exeter, UK* 26 June 2019
- Kepler/K2 Sci Con V (Contributed), *Glendale, California, USA* 7 March 2019
- MASSIVE star meeting (Contributed), *Leuven, Belgium* 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
- RAS specialist discussion meeting (**Invited**), *RAS, London, UK* 8 May 2015

### Seminars and Colloquia

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- Innsbruck University, Austria 12 March 2024
- HITS, Heidelberg, Germany 22 Nov 2023
- Newcastle University, UK 1 Nov 2023
- 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 <a href="#">[YouTube recording]</a>	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
• University of Central Lancashire (UCLan), UK	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

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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 and amateur astronomer societies in the UK and Belgium reaching thousands of people. Demonstrable return in terms of participant satisfaction and engagement with astronomy at various levels, for example young school students and members of the public. Dedicated to continuing to provide high-calibre outreach activities throughout career.

Examples of outreach and engagement activities to date include:

### Newcastle University (2023 – date)

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- 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 to date.

### KU Leuven, Belgium (2017 – 2023)

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- 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, with 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, 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 more than 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)

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During PhD at UCLan, 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

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As of 27 February 2024, publication citation metrics:

**Google scholar:** 3465 citations and h-index of 35      **NASA ADS:** 3066 citations and h-index of 34

Total of **17** peer-reviewed papers as first-author and **74** as co-author (of which **20** as second or third author), which include **4** publications in Nature, Nature Astronomy and Science, and **2** invited single-author review papers.

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

### Submitted papers currently under review:

- E. Farrell, G. Buldgen, G. Meynet, P. Eggenberger, M.-A. Dupret, **D. M. Bowman**, (*submitted, A&A*), ‘A method for non-linear inversion of the stellar structure applied to gravity mode pulsators’
- W. R. Thompson, F. Herwig, P. R. Woodward, H. Mao, P. Denissenkov, **D. M. Bowman**, S. Blouin, (*submitted, MNRAS*), ‘3D hydrodynamic simulations of massive main-sequence stars. II. Convective excitation and spectra of internal gravity waves’

### Accepted papers currently in press:

- 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, M. Munoz, J. V. Smoker (*in press*), ‘Observational evidence of mergers being a viable cause of magnetism in massive stars’
- A. Tkachenko, K. Pavlovski, N. Serebriakova, **D. M. Bowman**, L. IJspeert, S. Gebruers, J. Southworth, (*in press, A&A*), ‘Observational mapping of the mass discrepancy in eclipsing binaries. Selection of the sample and its photometric and spectroscopic properties’
- 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. Róžański, 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. Zocłńska, (*in press, A&A*), ‘Catalogue of BRITe-Constellation. I. Fields 1 to 14 (November 2013 – April 2016)’

### Published articles:

- 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 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  $\alpha$  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  $\mu$  Lep and  $\beta$  Scl and the superficially normal B star  $\nu$  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. Götzberg, **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, 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, 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, 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, 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, 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, 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, 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, 664 A159, ‘*Identifying quiescent compact objects in massive Galactic single-lined spectroscopic binaries*’ [\[ADS link\]](#)
- Z. T. Spetsieri, P. Boumis, A. Chiotellis, S. Akas, 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, 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, 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. Dervişoğlu, 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. Janssen, J. S. G. Mombarg, (2022), A&A, 658, A92, ‘*Dynamical parallax, physical parameters and evolutionary status of the components of the bright eclipsing binary  $\alpha$  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, 656, A158, ‘*Towards a systematic treatment of observational uncertainties in forward asteroseismic modelling of gravity-mode pulsators*’ [\[ADS link\]](#)
- [J. Van Beeck](#)<sup>\*</sup>, **D. M. Bowman**, M. G. Pedersen, T. Van Reeth, T. Van Hoolst, C. Aerts, (2021), A&A, 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. Kuzlewicz, 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*

- 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. Quiral-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 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 504, Issue 3, 4039–4053 ‘*KIC 5950759: a high-amplitude  $\delta$  Sct star with amplitude and frequency modulation near the terminal age main sequence*’ [\[ADS link\]](#)
- W. W. Weiss, K. Zwintz, R. Kuschnig, G. Handler, A. F. W. Moffat, D. Baade, **D. M. Bowman**, T. Granzer, T. Kallinger, O. F. Koudelka, C. Lovekin, C. Neiner, H. Pablo, A. Pigulski, A. Popowicz, T. Ramiaramanantsoa, S. Rucinski, K. Strassmeier, G. Wade, (2021), Universe 7, 199, ‘*Space Photometry with BRITe-Constellation*’ [\[ADS link\]](#)
- M. Michielsen, C. Aerts, **D. M. Bowman**, (2021), A&A 650, A175, ‘*Probing the temperature gradient in the core boundary layer of stars with gravito-inertial modes: the case of KIC 7760680*’ [\[ADS link\]](#)
- S. Gebruers, I. Straumit, A. Tkachenko, J. S. G. Mombarg, M. G. Pedersen, T. Van Reeth, G. Li, P. Lampens, A. Escorza, **D. M. Bowman**, P. De Cat, L. Vermeulen, Y. Frémat, J. Bodensteiner, H.-W. Rix, C. Aerts, (2021), A&A 650, A151, ‘*A homogeneous spectroscopic analysis of a Kepler legacy sample of dwarfs for gravity-mode asteroseismology*’ [\[ADS link\]](#)
- T. Shenar, H. Sana, P. Marchant, B. Pablo, N. Richardson, A. F. J. Moffat, T. Van Reeth, R. H. Barbá, **D. M. Bowman**, P. Broos, P. A. Crowther, S. Clark, A. de Koter, S. E. de Mink, K. Dsilva, G. Gräfener, I. D. Howarth, N. Langer, L. Mahy, J. Máiz Apellániz, A. M. Pollock, F. R. N. Schneider, L. Townsley, J. S. Vink, (2021), A&A 650, A147, ‘*The Tarantula Massive Binary Monitoring V. R144 – a wind-eclipsing binary with a total mass  $\geq 140 M_{\odot}$* ’ [\[ADS link\]](#)
- C. Johnston, N. Aimar, M. Abdul-Masih, **D. M. Bowman**, T. White, C. Hawcroft, H. Sana, S. Sekeran, K. Dsilva, A. Tkachenko, C. Aerts, (2021), MNRAS 503, Issue 1, 1124–1137, ‘*Characterization of the variability in the O+B eclipsing binary HD 165246*’ [\[ADS link\]](#)
- J. Southworth, **D. M. Bowman**, K. Pavlovski, (2021), MNRAS Letters 501, Issue 1, L65–L70, ‘*A beta Cephei pulsator and a changing orbital inclination in the high-mass eclipsing binary system VV Orionis*’ [\[ADS link\]](#)
- M. G. Pedersen, C. Aerts, P. I. Pápics, M. Michielsen, S. Gebruers, T. M. Rogers, G. Molenberghs, S. Burssens, S. Garcia, **D. M. Bowman**, (2021), Nature Astronomy, Volume 5, 715–722, ‘*Internal mixing of rotating stars inferred from dipole gravity modes*’ [\[ADS link\]](#)
- T. Steindl, K. Zwintz, **D. M. Bowman**, (2021), A&A 645, A119, ‘*Tidally perturbed pulsations in the pre-main sequence  $\delta$  Scuti binary RS Cha*’ [\[ADS link\]](#)

**2020:** 2 first author and 10 co-author publications

- S. Sekaran, A. Tkachenko, M. Abdul-Masih, A. Prša, C. Johnston, D. Huber, S. J. Murphy, G. Banyard, A. W. Howard, H. Isaacson, **D. M. Bowman**, C. Aerts, (2020), A&A 643, A162, ‘*Tango of celestial dancers: A sample of detached eclipsing binary systems containing g-mode pulsating components. A case study of KIC9850387*’ [\[ADS link\]](#)

- **D. M. Bowman**, (2020), *Frontiers in Astronomy and Space Sciences* 7, 70, 'Astero-seismology of high-mass stars: new insights of stellar interiors with space telescopes' [\[ADS link\]](#) **(Invited review)**
- J. Southworth, **D. M. Bowman**, A. Tkachenko, K. Pavlovski, (2020), *MNRAS Letters* 497, Issue 1, L19–L23, 'Discovery of  $\beta$  Cep pulsations in the eclipsing binary V453 Cygni' [\[ADS link\]](#)
- J. Bodensteiner, T. Shenar, L. Mahy, M. Fabry, P. Marchant, M. Abdul-Masih, G. Banyard, **D. M. Bowman**, K. Dsilva, A. J. Frost, C. Hawcroft, M. Reggiani, H. Sana, (2020), *A&A* 641, A43, 'Is HR 6819 a triple system containing a black hole? An alternative explanation' [\[ADS link\]](#)
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- J. Van Beeck\*, V. Prat, T. Van Reeth, S. Mathis, **D. M. Bowman**, C. Aerts, (2020), *A&A* 638, A149, 'Detecting axisymmetric magnetic fields using gravity modes in intermediate-mass stars' [\[ADS link\]](#)
- A. Tkachenko, K. Pavlovski, C. Johnston, C. Aerts, M. G. Pedersen, M. Michielsen, **D. M. Bowman**, J. Southworth, V. Tsymbal, (2020), *A&A* 637, A60, 'The mass discrepancy in intermediate- and high-mass eclipsing binaries: The need for higher convective core masses' [\[ADS link\]](#)
- M. Abdul-Masih, G. Banyard, J. Bodensteiner, E. Bordier, **D. M. Bowman**, K. Dsilva, M. Fabry, C. Hawcroft, L. Mahy, P. Marchant, G. Raskin, M. Reggiani, T. Shenar, A. Tkachenko, H. Van Winckel, L. Vermeylen, H. Sana, (2020), *Nature*, Volume 580, Issue 7805, E11–E15, 'On the signature of a 70-solar-mass black hole in LB-1' [\[ADS link\]](#)
- V. Prat, S. Mathis, C. Neiner, J. Van Beeck, **D. M. Bowman**, C. Aerts, (2020), *A&A* 636, A100, 'Period spacings of gravity modes in rapidly rotating magnetic stars. II. The case of an oblique dipolar fossil magnetic field' [\[ADS link\]](#)

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- B. J. S. Pope, G. R. Davies, K. Hawkins, T. R. White, A. Stokholm, A. Bieryla, D. W. Latham, M. Lucey, C. Aerts, S. Aigrain, V. Antoci, T. R. Bedding, **D. M. Bowman**, A. Chontos, G. A. Esquerdo, D. Huber, P. Jofré, S. J. Murphy, T. Van Reeth, V. Silva Aguirre, J. Yu, (2019), ApJS 244, Issue 1, 18, ‘*The Kepler Smear Campaign: Light curves for 102 Very Bright Stars*’ [[ADS link](#)]
- **D. M. Bowman**, C. Johnston, A. Tkachenko, D. Mkrichian, K. Gunsriiwat, C. Aerts, (2019), ApJL 883, Issue 1, L26, ‘*Discovery of tidally-perturbed pulsations in the eclipsing binary system U Gru: a crucial system for tidal asteroseismology*’ [[ADS link](#)]
- **D. M. Bowman** and D. L. Holdsworth, (2019), A&A 629, A21, ‘*Adaptive elliptical aperture photometry: a software package for high-cadence ground-based photometry. I. Application to rapid oscillators observed from SAAO*’ [[ADS link](#)]
- J. Sikora, A. David-Uraz, S. Chowdhury, **D. M. Bowman**, G. A. Wade, V. Khalack, O. Kobzar, O. Kochukhov, C. Neiner, E. Paunzen, (2019), MNRAS 487, Issue 4, 4695–4710, ‘*MOBSTER – II. Identification of rotationally variable A stars observed with TESS in sectors 1–4*’ [[ADS link](#)]
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- R. Manick, D. Kamath, H. Van Winkel, A. Jorissen, S. Sekaran, **D. M. Bowman**, G.-M. Oomen, J. Kluska, D. Bollen, C. Waelkens, (2019), A&A 628, A40, ‘*Spectroscopic binaries RV Tauri and DF Cygni*’ [[ADS link](#)]
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- **D. M. Bowman**, S. Burssens, M. G. Pedersen, C. Johnston, C. Aerts, B. Buysschaert, M. Michielsen, A. Tkachenko, T. M. Rogers, P. V. F. Edelmann, R. P. Ratnasingam, S. Simón-Díaz, N. Casto, E. Moravveji, B. J. S. Pope, T. R. White, P. De Cat, (2019), Nature Astronomy, Volume 3, Number 8, 760–765, ‘*Low-frequency gravity waves in blue supergiants revealed by high-precision space photometry*’ [[ADS link](#)]
- J. S. G. Mombarg, T. Van Reeth, M. G. Pedersen, G. Molenberghs, **D. M. Bowman**, C. Johnston, A. Tkachenko, C. Aerts, (2019), MNRAS 485, Issue 3, 3248–3263, ‘*Asteroseismic masses, ages and core properties of  $\gamma$  Doradus stars using the asymptotic period spacing and spectroscopy*’ [[ADS link](#)]
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- G. Handler, A. Pigulski, J. Daszyńska-Daszkiewicz, A. Irrgang, D. Kilkeny, Z. Guo, N. Przybilla, F. Kahraman Aliçavuş, T. Kallinger, J. Pascual-Granado, E. Niemczura, T. Rózański, S. Chowdhury, D. L. Buzasi, G. M. Mirouh, **D. M. Bowman**, C. Johnston, M. G. Pedersen, S. Simón-Díaz, E. Moravveji, K. Gazeas, P. De Cat, R. K. Vanderspek, G. R. Ricker, (2019), ApJL 873, Issue 1, L4, ‘*Asteroseismology of massive stars with the TESS mission: the runaway  $\beta$  Cep pulsator PHL 346 = HN Aqr*’ [[ADS link](#)]

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- C. Johnston, A. Tkachenko, C. Aerts, G. Molenberghs, **D. M. Bowman**, M. G. Pedersen, B. Buysschaert, P. I. Pápics, (2019), *MNRAS* 482, Issue 1, 1231–1246, ‘Binary Asteroseismic Modelling: isochrone-cloud methodology and application to Kepler gravity mode pulsators’ [[ADS link](#)]
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- D. L. Holdsworth, M. S. Cunha, H. Shibahashi, D. W. Kurtz, **D. M. Bowman**, (2018), *MNRAS* 480, Issue 3, 2976–2984, ‘K2 observations of the rapidly oscillating Ap star 33 Lib (HD 137949): new frequencies and unique non-linear interactions’ [[ADS link](#)]
- D. L. Holdsworth, H. Saio, R. R. Sefako, **D. M. Bowman**, (2018), *MNRAS* 480, Issue 2, 2405–2410, ‘LCO observations of a super-critical distorted pulsation in the roAp star J0855 (TYC 2488-1241-1)’ [[ADS link](#)]
- T. Van Reeth, J. S. G. Mombarg, S. Mathis, A. Tkachenko, J. Fuller, **D. M. Bowman**, B. Buysschaert, C. Johnston, A. García Hernández, J. Goldstein, R. H. D. Townsend, C. Aerts, (2018), *A&A* 618, A24, ‘Sensitivity of gravito-inertial modes to differential rotation in intermediate-mass main-sequence stars’ [[ADS link](#)]
- B. Buysschaert, C. Neiner, A. J. Martin, C. Aerts, **D. M. Bowman**, M. E. Oksala, T. Van Reeth, (2018), *MNRAS* 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* 616, A77, ‘Forward seismic modeling of the pulsating magnetic B-type star HD 43317’ [[ADS link](#)]
- **D. M. Bowman**, B. Buysschaert, C. Neiner, P. I. Pápics, M. E. Oksala, C. Aerts, (2018), *A&A* 616, A77, ‘K2 space photometry reveals rotational modulation and stellar pulsations in chemically peculiar A and B stars’ [[ADS link](#)]
- C. Aerts, G. Molenberghs, M. Michielsen, M. G. Pedersen, R. Björklund, C. Johnston, J. S. G. Mombarg, **D. M. Bowman**, B. Buysschaert, P. I. Pápics, S. Sekaran, J. O. Sundqvist, A. Tkachenko, K. Truyaert, T. Van Reeth, E. Vermeyen, (2018), *ApJS* 237, 15–46, ‘Forward asteroseismic modeling of stars with a convective core from gravity-mode oscillations: parameter estimation and stellar model selection’ [[ADS link](#)]
- **D. M. Bowman** and D. W. Kurtz, (2018), *MNRAS* 476, Issue 3, 3169–3184, ‘Characterizing the observational properties of  $\delta$  Sct stars in the era of space photometry from the Kepler mission’ [[ADS link](#)]
- C. Aerts, **D. M. Bowman**, S. Simón-Díaz, B. Buysschaert, C. Johnston, E. Moravveji, P. G. Beck, P. De Cat, S. Triana, S. Aigrain, N. Castro, D. Huber, T. White, (2018), *MNRAS* 476, Issue 1, 1234–1241, ‘K2 photometry and HERMES spectroscopy of the blue supergiant  $\rho$  Leo: rotational wind modulation and low-frequency waves’ [[ADS link](#)]
- D. L. Holdsworth, H. Saio, **D. M. Bowman**, D. W. Kurtz, R. R. Sefako, M. Joyce, T. Lambert, B. Smalley, (2018), *MNRAS* 476, Issue 1, 601–616, ‘Suppressed phase variations in a high amplitude rapidly oscillating Ap star pulsating in a distorted quadrupole mode’ [[ADS link](#)]



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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 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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- **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](https://doi.org/10.1007/978-3-319-66649-5), ISBN: 978-3-319-66648-8

## XVI. Thesis

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- **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://clock.uclan.ac.uk/18788/>

## XVII. Conference Proceedings

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- 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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- J. Schuermans, G. Raskin, **D. M. Bowman**, J. De Maeyer, M. Kempenaers, J. Pember, P. Royer, H. Sana, C. Schwab, B. Vandenbussche, (2022), '*CubeSpec: LED-based calibration system*', Proc. SPIE 12180, Space Telescopes and Instrumentation 2022: Optical, Infrared, and Millimeter Wave, 1218030, [[ADS link](#)]
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- **D. M. Bowman**, S. Burssens, S. Simón-Díaz, P. V. F. Edelmann, T. M. Rogers, L. Horst, F. K. Röpke, C. Aerts, (2021), '*Collective velocity broadening from gravity waves as a plausible mechanism for macroturbulence in massive stars*', MOBSTER-1 virtual conference: Stellar variability as a probe of magnetic fields in massive stars, Proceedings of the MOBSTER-1 virtual conference held 12-17 July 2020, id. 15 [\[ADS link\]](#)
- [J. Van Beeck](#)<sup>\*</sup>, V. Prat, T. Van Reeth, S. Mathis, **D. M. Bowman**, C. Neiner, C. Aerts, (2021), '*Linking detected gravity modes to axisymmetric internal magnetic fields*', MOBSTER-1 virtual conference: Stellar variability as a probe of magnetic fields in massive stars, Proceedings of the MOBSTER-1 virtual conference held 12-17 July 2020, id. 13 [\[ADS link\]](#)
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