

# Dominic M. Bowman

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

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**Place of birth:** Nuneaton, United Kingdom

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## I. Personal Statement

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Currently I am an FWO senior postdoctoral research fellow in the Institute of Astronomy at KU Leuven. My primary research focus is asteroseismology of high- and intermediate-mass stars. The analysis of stellar pulsations reveals tight constraints on interior physics such as rotation, mixing and angular momentum transport. My expertise includes the extraction and analysis of photometric and spectroscopic data from space- and ground-based telescopes, and forward seismic modelling of pulsating stars. I am passionate and actively develop teaching at the BSc, MSc and PhD level, and outreach for all ages and backgrounds.

My undergraduate studies at the University of Birmingham inspired me to pursue a research career in asteroseismology. I completed my PhD at UCLan in the UK under the supervision of Prof. Donald Kurtz, and my thesis was published as a Springer monograph. I published a first-author paper in Nature Astronomy on my postdoctoral research at KU Leuven, which was selected as the cover image for the August 2019 issue. In May 2020, I was awarded the prestigious KU Leuven Research Council Award in Science, Engineering and Technology (2020) for my breakthrough research in asteroseismology of massive stars. In November 2020, I began a prestigious and competitive 3-yr FWO research fellowship based at KU Leuven in Belgium.

## II. Education

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### Postgraduate degree

Oct 2013 – Nov 2016

PhD in astronomy with thesis title: *Amplitude modulation and energy conservation of pulsation modes in delta Scuti stars*, awarded on 21 November 2016 by the University of Central Lancashire, Preston, UK. My supervisor was Prof. Donald Kurtz and I was funded by the UK Science and Technology Facilities Council (STFC). I passed my PhD defence outright with no corrections about 6 months ahead of schedule.

### Undergraduate degree

Sept 2009 – June 2013

First class integrated Master (BSc + MSc) in Science (M.Sci.) degree with honours in physics and astrophysics from the University of Birmingham in the UK, with an award date of 8 July 2013.

## III. Employment

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### FWO Senior Postdoctoral Fellowship

1 Nov 2020 to present date

Institute of Astronomy, KU Leuven, Celestijnenlaan 200D, 3001 Leuven, Belgium. Personal mandate funded by Fonds Wetenschappelijk Onderzoek (FWO) Vlaanderen (grant agreement N° 1286521N).

### Postdoctoral Research Associate

1 Feb 2017 to 31 Oct 2020

Institute of Astronomy, KU Leuven, 3001 Leuven, Belgium. Funded by the European Union's Horizon 2020 research and innovation programme (grant agreement N° 670519: MAMSIE, PI Aerts).

### Lecturer in Astronomy

19 Sept 2016 – 13 Jan 2017

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

## IV. Scientific Prizes and Awards

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

May 2020

This prestigious and highly-competitive prize for postdoctoral researchers within KU Leuven was awarded for my research in massive star asteroseismology. It required recommendations from three referees, a competitive selection process and interview overseen by the Executive Research Council of KU Leuven across all the Science, Technology and Engineering faculties, and included €20 000 of research funding.

### **Springer Thesis Award**

Oct 2017

My PhD thesis was published as part of the Springer thesis series in 2017 for Outstanding PhD Research. This prestigious scientific prize required recommendations from my PhD supervisor and one of my thesis examiners, and a selection process overseen by the executive editor of astronomy at Springer. Furthermore, this opportunity allowed me to expand my thesis into a detailed monograph and included a cash prize.

### **Travel grants**

I have been successful in numerous travel bursary applications to external funding bodies for attending international conferences, which include STFC and RAS in the UK, CNRS in France and FWO in Belgium. The combined total of these travel grants is approximately €5000.

## V. Conference Organisation

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### **TASC6/KASC13, Leuven, Belgium**

postponed to July 2022

Co-Chair of the LOC for the TASC6/KASC13 conference of the asteroseismic community, which will be held in Leuven and attract ~200 participants. Postponed from 2020 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.

### **MOBSTER1, 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. Format was changed to a virtual conference because of the COVID-19 pandemic.

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

29 June – 3 July 2020

Chair of the SOC of the special session titled “New insights of angular momentum transport in stellar interiors” held on 1 June during the EAS 2020 meeting, which had more than 100 participants. Format was changed to a virtual conference because of the COVID-19 pandemic.

### **STARS2016, Windermere, UK**

11 – 15 Sept 2016

Principal organiser (Chair of the LOC) for the STARS2016 conference which celebrated the scientific career of Prof. Donald Kurtz and had more than 75 participants. The budget was approximately £40 000, and successful grant applications included £3000 from the RAS and £7000 from UCLan for this meeting.

## VI. Personal Training

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### **Voice of the future, Westminster, London, UK**

15 March 2017

I was awarded an RAS travel grant to this meeting on bridging young scientists and politicians.

### **STFC careers event, Institute of Physics, London, UK**

21 Oct 2015

I was successful in my application for an STFC travel grant for the costs of attending.

### **Media training for outreach, Royal Society, London, UK**

7 Oct 2015

I was successful in my application for an STFC bursary for the costs of attending.

## VII. International Responsibilities and Committees

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### **Review Editor, Frontiers**

Feb 2021 to present date

Editorial Board member and **Review Editor** for the journal Frontiers in Astronomy and Space Sciences and Frontiers in Physics.

### **ULLYSES WG12 chair**

Dec 2020 to present date

Point of contact (chair) of WG12: pulsations of the ULLYSES and **XShootU** collaboration.

### **Good Vibrations seminar series**

Nov 2020 to present date

Steering committee member for the **Good Vibrations seminar series**, which promotes and provides opportunities for PhD students to share their research internationally.

### **co-PI MOBSTER collaboration**

Nov 2020 to present date

Together with P.I. Alex David-Uraz and co-P.I. Coralie Neiner, we are in charge of organising and maximising the scientific productivity of the **MOBSTER** collaboration, which leverages TESS data to identify and study massive magnetic stars.

### **RAS ECN committee member**

June 2020 to present date

Secretary for the **Early Careers Network (ECN)** of the UK Royal Astronomical Society (RAS).

### **BEST member**

Sept 2019 to present date

Non-voting member of the **BRITE Executive Science Team** (BEST).

### **SHOC@SAAO pipeline developer**

July 2020 to present date

I am the principal author of the **TEA-PHOT** pipeline to reduce and extract light curves from the SHOC imager at SAAO. The TEA-PHOT pipeline is published: Bowman & Holdsworth (2019, A&A 629, A21), and is fully endorsed by the **SHOC instrument team** at SAAO as the go-to reduction pipeline.

### **CUBESpec scientific advisor**

Jan 2019 to present date

Advisor on the development and implementation of the asteroseismic science case for the CUBESpec cube-sat mission being built by KU Leuven in collaboration with Space Inventor and ESA.

### **PLATO external reviewer**

November 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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Junior Member of International Astronomical Union (IAU) since January 2020.

Member of the European Astronomical Society (EAS) since April 2019.

Fellow of the Royal Astronomical Society (FRAS) since October 2013.

Member of the Institute of Physics (MInstP) since October 2013.

## IX. Observing Projects and Experience

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

- Two weeks 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.
- Co-I of ESO programme obtaining multi-epoch high-resolution spectroscopy of gamma Doradus stars with UVES (*106.21S8.001; 106.21S8.003; 106.21S8.003; 21 hr; PI Christophe*).
- Co-I of MPG/ESO programme obtaining multi-epoch high-resolution spectroscopy of massive binary stars with FEROS (*0106.A-9106; 90 hr; PI Aerts*).
- Co-I of ESO large programme obtaining multi-epoch high-resolution spectroscopy of massive stars with UVES (*1104.D-0230; 120 hr; PI Tkachenko*).
- Co-I of MPG/ESO programme obtaining multi-epoch high-resolution spectroscopy of massive stars with FEROS (*0104.A-9001; 120 hr; PI Aerts*).
- Co-I of ESO 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 TESS Guest Investigator proposal obtaining high-precision and short-cadence time series photometry of massive stars in cycle 3 (*G03059; 1058 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*

- Three weeks 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*

- Approximately 40 nights of observing experience using the HERMES and MAIA instruments on the 1.2-m Mercator telescope between 2017 and 2021.
- PI of MAIA proposal awarded 120 hr in semester 2020b to gain 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 gain spectroscopy of Ap stars being observed by TESS.
- PI of a HERMES proposal awarded 60 hr in semester 2018a to gain 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*

- Approximately 20 nights of observing experience with 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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### PhD theses, KU Leuven, Belgium

- Examination committee (jury) member of Camilla Scolini May 2020  
*Magnetised Coronal Mass Ejections: evolution from the Sun to 1 AU and geo-effectiveness*
- Co-supervisor of Jordan Van Beeck Sept 2019 to date  
*Application of non-linear asteroseismology to Kepler and TESS photometry*
- Progress committee member of Joris Hermans Sept 2019 to date  
*Solar flux ropes and tornadoes*
- Co-supervisor of Siemen Burssens Sept 2018 to date  
*Variability of blue supergiants with the K2 and TESS space missions*
- Progress committee member of Joey S. G. Mombarg Feb 2018 to date  
*Forward seismic modelling of intermediate mass stars*
- Host supervisor of Mariel Lares-Martiz Sept 2019 to Dec 2019  
*Non-linear terms in intermediate-mass pulsating stars' power spectra*

### Master theses, KU Leuven, Belgium

- Supervisor of Nagaraj Vernekar Sept 2020 to date  
*On the photometric and spectroscopic variability of Be stars*
- 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 to June 2019  
*Testing stellar evolution with selected high-amplitude delta Scuti stars*
- Supervisor of Sven Nys Sept 2018 to June 2019  
*Asteroseismic modelling of gravity modes in selected intermediate-mass stars*
- Co-supervisor of Jordan Van Beeck Sept 2018 to 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*

### Module Tutor, KU Leuven, Belgium Sept 2019 to date

Responsible for delivering the MSc thesis defence preparation course.

### Module Tutor, KU Leuven, Belgium Sept 2017 to date

Examiner for the Bachelor science communication and MSc Asteroseismology courses.

### Bachelor and master student projects, KU Leuven, Belgium Sept 2017 to date

Supervision of multiple bachelor and master student projects in asteroseismology.

### Module tutor, UCLan, UK Sept 2016 – Jan 2017

Responsible for lecturing first- and second-year Bachelor courses in statistics, astronomy, mathematics, and supervision of astronomy laboratories at Alston observatory.

## XI. Scientific Conferences and Workshops

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| <b>IAU361 mini-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><br>Invited speaker on the topic of asteroseismology of O and B stars.  | 26 – 30 April 2021    |
| <b>EAS 2021</b> , <i>Virtual (hosted by Leiden University, the Netherlands)</i><br>Co-Chair of the SOC of the symposium titled “Massive stars: birth, rotation, and chemical evolution”.   | 28 June – 2 July 2021 |
| <b>Pulsations in Multiple Systems</b> , <i>Virtual (hosted by University of Surrey, UK)</i><br>Invited speaker on the topic of asteroseismology of OBAF stars.   | 18 - 22 Jan 2021      |
| <b>MOBSTER-1</b> , <i>Virtual (hosted by University of Delaware, USA)</i><br>Co-Chair of the SOC for the first conference of the MOBSTER collaboration.  | 13 – 17 July 2020     |
| <b>EAS 2020</b> , <i>Virtual (hosted by Leiden University, the Netherlands)</i><br>Chair of the SOC for the special session 5 (SS5) titled: “New insights of angular momentum transport in stellar interiors” at the EAS2020 conference. | 29 June – 3 July 2020 |
| <b>Stars and their Variability</b> , <i>Vienna, Austria</i><br>Invited speaker on the topic of asteroseismology of O and B stars.  | 19 – 23 Aug 2019      |
| <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 mini-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 mini-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><br>Invited speaker on the topic of asteroseismology of A and F stars. I was successful in my application for 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 mini-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     |

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| <b>STARS2016</b> , <i>Windermere, UK</i><br>Co-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><br>My application for the defrayment of my registration fee was successful.               | 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><br>My accommodation and subsistence costs were funded by STFC.                   | 31 Aug – 4 Sept 2015  |
| <b>KASC8/TASC1 workshop</b> , <i>Aarhus University, Denmark</i><br>I was successful in my application for an RAS travel grant for half the total costs.  | 15 – 19 June 2015     |
| <b>RAS specialist discussion meeting</b> , <i>RAS, London, UK</i><br>Invited speaker on the topic of pulsations in delta Scuti stars observed by Kepler. | 8 May 2015            |
| <b>K2 data workshop</b> , <i>Aarhus University, Denmark</i><br>Attended participated remotely via video-link.  | 10 – 11 Nov 2014      |
| <b>Ecole Evry Schatzman 2014</b> , <i>Roscoff, France</i><br>My accommodation and subsistence costs were funded by CNRS.                                 | 28 Sept – 3 Oct 2014  |
| <b>CoRoT3/KASC7 meeting</b> , <i>Toulouse, France</i><br>My application for the defrayment of my registration fee was successful.                        | 6 – 11 July 2014      |
| <b>Spectroscopy workshop</b> , <i>Aarhus University, Denmark</i><br>My application for an RAS travel grant for half the total costs was successful.      | 19 – 23 May 2014      |

## XII. Talks, Seminars and Colloquia

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| IAU 361 mini-symposium (Contributed), <i>Virtual (hosted by DIAS, Ireland)</i>                  | 3 May 2021    |
| OBA stars: variability and magnetic fields (Invited), <i>Virtual (hosted by St. Petersburg)</i> | 30 April 2021 |
| PIMMS workshop (Invited), <i>Virtual (hosted by University of Surrey, UK)</i>                   | 18 Jan 2021   |
| Department seminar, <i>KITP, California, USA</i>  | 16 Dec 2020   |
| Stars and their Variability (Invited), <i>Vienna, Austria</i>                                   | 19 Aug 2019   |
| TESS Sci Con I (Contributed), <i>MIT, Cambridge, USA</i>  | 30 July 2019  |
| TASC5/KASC12 (Contributed), <i>MIT, Cambridge, USA</i>  | 23 July 2019  |
| Stellar Hydro Days V (Contributed), <i>Exeter, UK</i>   | 26 June 2019  |
| Department seminar, <i>KU Leuven, Belgium</i>   | 22 March 2019 |
| Kepler/K2 Sci Con V (Contributed), <i>Glendale, California, USA</i>                             | 7 March 2019  |
| MASSIVE star meeting (Contributed), <i>Leuven, Belgium</i>                                      | 4 Oct 2018    |
| PHOST conference (Contributed), <i>Banyuls-sur-mer, France</i>                                  | 6 Sept 2018   |
| TASC4/KASC11 workshop (Invited), <i>SAC, Aarhus University, Denmark</i>                         | 13 July 2018  |
| Department seminar, <i>Newcastle University, UK</i>   | 6 June 2018   |

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| Department seminar, <i>ULB, Brussels, Belgium</i>                          | 19 April 2018 |
| Department seminar, <i>KU Leuven, Belgium</i>                              | 2 March 2018  |
| Department seminar, <i>Royal Observatory of Belgium</i>                    | 16 Nov 2017   |
| STARS2016 conference (Contributed), <i>Windermere, UK</i>                  | 14 Sept 2016  |
| Department seminar, <i>SAC, Aarhus University, Denmark</i>                 | 2 May 2016    |
| KASC8/TASC1 workshop (Contributed), <i>SAC, Aarhus University, Denmark</i> | 15 June 2015  |
| RAS specialist discussion meeting (Invited), <i>RAS, London, UK</i>        | 8 May 2015    |
| Department seminar, <i>Keele University, UK</i>                            | 4 Sept 2014   |

### XIII. Public Engagement and Outreach

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I am passionate about public engagement and outreach in science, but particularly in astronomy. I have organised and assisted in many outreach events for school students and amateur astronomer societies in the UK and Belgium. Whilst at UCLan in the UK, this included using the modern 0.7-m telescope at Alston observatory, at which visitors were given an interactive tour of the night sky using the modern planetarium. I also visited primary and secondary schools to give talks and run astronomy-themed group activities. It is enjoyable and rewarding to engage with young students and members of the public and discuss astronomy at various levels. I am dedicated to my outreach activities throughout my career.

Notable outreach activities I have performed whilst at KU Leuven include:

- Ongoing participant of the [Scientist@School](#) program, for which I provide astronomy-themed talks and activities for local Belgian schools.
- Ongoing participant of the [Skype a Scientist](#) program, for which I regularly discuss astronomy online with international participants, including school classrooms and families.
- 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.
- 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 100 attendees.
- A 90-min workshop on space exploration and the solar system at the KU Leuven [Kids University 2018](#), for 30 students aged 8–12 on 5 May 2018.
- 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.



## XIV. Peer-Reviewed Scientific Publications

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As of 2 April 2021, my citation metrics are:

**Google scholar:** 1170 citations and h-index of 21    **NASA ADS:** 1029 citations and h-index of 20

### Submitted papers currently under review:

- **D. M. Bowman**, J. Hermans, J. Daszyńska-Daszkiewicz, D. L. Holdsworth, A. Tkachenko, S. J. Murphy, B. Smalley, D. W. Kurtz, (*submitted to MNRAS*), ‘*KIC 5950759: a high-amplitude  $\delta$  Sct star with amplitude and frequency modulation near the terminal age main sequence*’
- 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, (*submitted to A&A*), ‘*The Tarantula Massive Binary Monitoring V. R 144 – a wind-eclipsing binary with a total mass  $\geq 140 M_{\odot}$* ’
- 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, (*submitted to A&A*), ‘*A homogeneous spectroscopic analysis of a Kepler legacy sample of dwarfs for gravity-mode asteroseismology*’
- M. Michielsen, C. Aerts, **D. M. Bowman**, (*submitted to A&A*), ‘*Probing the temperature gradient in the core boundary layer of stars with gravito-inertial modes: the case of KIC 7760680*’

### Accepted papers currently in press:

- 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, (*in press, MNRAS*), ‘*MOBSTER – IV. Detection of a new magnetic B-type star from follow-up spectropolarimetric observations of photometrically selected candidates*’

### Published articles:

- 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, 124–1137, ‘*Characterization of the variability in the O+B eclipsing binary HD 165246*’
- 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*’
- 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*’

### 2020

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- S. Sekeran, 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*’
- **D. M. Bowman**, (2020), Frontiers in Astronomy and Space Sciences 7, 70, ‘*Asteroseismology of high-mass stars: new insights of stellar interiors with space telescopes*’

- 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*’
- L. Horst, P. V. F. Edelmann, R. Andr  ssy, F. K. R  pke, **D. M. Bowman**, C. Aerts, R. P. Ratnasingam, (2020), A&A 641, A18, ‘*Fully compressible simulations of waves and core convection in main-sequence stars*’
- **D. M. Bowman**, S. Burssens, S. Sim  n-D  az, P. V. F. Edelmann, T. M. Rogers, L. Horst, F. K. R  pke, C. Aerts, (2020), A&A 640, A36, ‘*Photometric detection of internal gravity waves in upper main-sequence stars. II. Combined TESS photometry and high-resolution spectroscopy*’
- S. Burssens, S. Sim  n-D  az, **D. M. Bowman**, G. Holgado, M. Michielsen, A. de Burgos, N. Castro, R. H. Barb  , C. Aerts, (2020), A&A 639, A81, ‘*Variability of OB stars from TESS southern Sectors 1-13 and high-resolution IACOB and OWN spectroscopy*’
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