

# Dr. Jakub Ostrowski

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Wrocław, Poland  
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<https://github.com/cespenar>

## RESEARCH INTERESTS

stellar evolution, stellar pulsations, asteroseismology, massive stars, subdwarf B stars

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## EDUCATION

**Doctor of Philosophy in Astronomy** Oct. 2011 - Sep. 2017  
*University of Wrocław, Wrocław, Poland*

**Master of Science in Astronomy** Oct. 2006 - Sep. 2011  
*University of Wrocław, Wrocław, Poland*

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## RESEARCH EXPERIENCE

**Post-doctoral Researcher** Sep. 2018 - Aug. 2022  
*Pedagogical University of Cracow, Cracow, Poland*

**Post-doctoral Researcher** Sep. 2017 - Aug. 2018  
*Nicolaus Copernicus Astronomical Center, Warsaw, Poland*

**Ph.D. Student Researcher** Oct. 2011 - Sep. 2017  
*University of Wrocław, Wrocław, Poland*

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## REFEREED PUBLICATIONS

1. Sanjayan, S., Baran, A. S., Nemeth, P., Kinemuchi, K., **Ostrowski, J.**, Sahoo, S. K., *A variable star population in the open cluster NGC 6791 observed by the Kepler spacecraft*, 2022, accepted for publication in Acta Astronomica
2. Silvotti, R., Nemeth, P., Telting, J. H., Baran, A. S., Ostensen, R. H., **Ostrowski, J.**, Sahoo, S. K., Prins, S., *Filling the gap between synchronized and non-synchronized sdBs in short-period sdBV+dM binaries with TESS: TIC 137608661, a new system with a well-defined rotational splitting*, 2022, Monthly Notices of the Royal Astronomical Society, 511, 2201
3. Sanjayan, S., Baran, A. S., **Ostrowski, J.**, Nemeth, P., Pelisoli, I., Ostensen, R., Kern, J. W., Reed, M. D., Sahoo, S. K., *Pulsating subdwarf B stars in the oldest open cluster NGC 6791*, 2022, Monthly Notices of the Royal Astronomical Society, 509, 763
4. **Ostrowski, J.**, Baran, A. S., Sanjayan, S., Sahoo, S. K., *Evolutionary modelling of subdwarf B stars using MESA with the predictive mixing and convective pre-mixing schemes*, 2021, Monthly Notices of the Royal Astronomical Society, 503, 4646

5. Baran, A. S., Sahoo, S. K., Sanjayan, S., **Ostrowski, J.**, *A search for variable subdwarf B stars in TESS Full Frame Images - II. Variable objects in the northern ecliptic hemisphere*, 2021, Monthly Notices of the Royal Astronomical Society, 503, 3828
6. Baran, A. S., Ostensen, R. H., Heber, U., Irrgang, A., Sanjayan, S., Telting, J. H., Reed, M. D., **Ostrowski, J.**, *Space observations of AA Doradus provide consistent mass determinations. New HW-Vir systems observed with TESS*, 2021, Monthly Notices of the Royal Astronomical Society, 503, 2157
7. Sahoo, S. K., Baran, A. S., Sanjayan, S., **Ostrowski, J.**, *A search for variable subdwarf B stars in TESS full frame images - I. Variable objects in the southern ecliptic hemisphere*, 2020, Monthly Notices of the Royal Astronomical Society, 499, 5508
8. Sahoo, S. K., Baran, A. S., Heber, U., **Ostrowski, J.**, Sanjayan, S., Silvotti, R., Irrgang, A., Uzundag, M., Reed, M. D., Shoaf, K. A., Raddi, R., Vuckovic, M., Ghasemi, H., Zong, W., Bell, K. J., *Mode identification in three pulsating hot subdwarfs observed with TESS satellite*, 2020, Monthly Notices of the Royal Astronomical Society, 495, 2844
9. Suchomska, K., Graczyk, D., Pietrzyński, G., Gieren, W., **Ostrowski, J.**, Smolec, R., Tkachenko, A., Górski, M., Karczmarek, P., Wielgórski, P., Zgierski, B., Thompson, I. B., Villanova, S., Pilecki, B., Taormina, M., Kołaczkowski, Z., Narloch, W., Soszyński, I., *Accurate stellar parameters and distance to two evolved eclipsing binary systems, OGLE-BLG-ECL-123903 and OGLE-BLG-ECL-296596, towards the Galactic bulge*, 2019, Astronomy & Astrophysics, 621, A93
10. Graczyk, G., Pietrzyński, G., Thompson, I. B., Gieren, W., Pilecki, B., Konorski, P., Villanova, S., Górski, M., Suchomska, K., Karczmarek, P., Stepień, K., Storm, J., Taormina, M., Kołaczkowski, Z., Wielgórski, P., Narloch, W., Zgierski, B., Gallene, A., **Ostrowski, J.**, Smolec, R., Udalski, A., Soszyński, I., Kervella, P., Nardetto, N., *The late type eclipsing binaries in the Large Magellanic Cloud: Catalogue of fundamental physical parameters*, 2018, The Astrophysical Journal, 860, 1
11. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., Cugier, H., *Revising evolutionary stage of HD 163899: The effects of convective overshooting and rotation*, 2017, The Astrophysical Journal, 835, 290
12. Kahraman-Alicavus, F., Niemczura, E., DeCat, P., Soyduğan, E., Kołaczkowski, Z., **Ostrowski, J.**, Telting, J. H., Uytterhoeven, K., Poretti, E., Rainer, M., Suarez, J. C., Mantegazza, L., Kilmartin, P., Pollard, K. R., *Spectroscopic Survey of Gamma Doradus Stars I. Comprehensive atmospheric parameters and abundance analysis of Gamma Doradus stars*, 2016, Monthly Notices of the Royal Astronomical Society, 458, 2307
13. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations in B-type supergiants with masses  $M < 20M_{\odot}$  before and after core helium ignition*, 2015, Monthly Notices of the Royal Astronomical Society, 447, 2378
14. Daszynska-Daszkiewicz, J., **Ostrowski, J.**, Pamyatnykh, A. A., *Pulsational instability in B-type supergiant stars*, 2013, Monthly Notices of the Royal Astronomical Society, 432, 3153
15. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., Pamyatnykh, A. A., *Excitation of pulsation modes in B-type supergiant stars*, 2012, Astronomical Notes, 333, 946

NON-  
REFEREED  
PUBLICATIONS

1. Guzik, J. A., Farag, E., **Ostrowski, J.**, Evans, N. R., Neilson, H., Moschou, S., Drake, J. J., *Investigating Opacity Modifications and Reaction Rate Uncertainties to Resolve the Cepheid Mass Discrepancy*, 2021, Astronomical Society of the Pacific Conference Series, 529, 79
2. **Ostrowski, J.**, Daszyńska-Daszkiewicz, J., Cugier, H., *Constraints on rotation of B-type stars from the nitrogen abundance*, 2017, EPJ Web of Conferences, 152, 06006
3. Pigulski, A., Baran, A., Bzowski, M., Cugier, H., Czerny, B., Daszynska-Daszkiewicz, J., Dziembowski, W., Handler, G., Kolaczowski, Z., Krolikowska, M., Krzesinski, J., Maciejewski, G., Michalska, G., Molenda-Zakowicz, J., Moskalik, P., Niedzielski, A., Niemczura, E., **Ostrowski, J.**, Pamyatnykh, A., Ratajczak, M., Rucinski, S., Siwak, M., Smolec, R., Szutowicz, S., Tomov, T., Wyrzykowski, L., Zola, S., Sarna, M., *UVSat: a concept of ultraviolet/optical photometric satellite*, 2017, Proceedings of the Polish Astronomical Society, 5, 76
4. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., Cugier, H., *Determining the evolutionary stage of HD163899 on the basis of its oscillation spectrum*, 2016, Astronomy in Focus, 11, 567
5. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations of massive stars beyond TAMS: effects of mass loss, diffusion, overshooting*, 2015, IAU Symposium, 307, 226
6. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations of blue supergiants before and after helium core ignition*, 2014, IAU Symposium, 301, 321

TALKS

1. **Ostrowski, J.**, *Evolutionary modelling of sdB stars using the MESA code*, Wrocław, Poland, University of Wrocław, May 25, 2020, **invited talk**
2. **Ostrowski, J.**, Baran, A. S., Sahoo, S., Sanjayan, S., *Modern evolutionary modelling of sdB stars using the MESA code*, Hendaye, France, 9th Meeting on Hot Subdwarfs and Related Objects, June 23 - 28, 2019, contributed talk
3. **Ostrowski, J.**, Smolec, R., *Calibration of the evolutionary models*, Cracow, Poland, Araucaria Meeting 2017, Sep. 21 - 23, 2017, **invited talk**
4. **Ostrowski, J.**, *Evolution and pulsations of massive stars with the effects of rotation and mixing processes*, Warsaw, Poland, Nicolaus Copernicus Astronomical Center, May 17, 2017, **invited talk**
5. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations of B-type supergiants and prospects for their interpretation with BRITE data*, Gdansk, Poland, Science with BRITE-Constellation: initial results, September 14 - 18, 2015, contributed talk
6. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., Cugier, H., *Resolving the evolutionary stage of HD 163899 on the basis of its oscillation spectrum*, Honolulu, USA, IAU XXIX General Assembly FM17, August 3 - 14, 2015, contributed talk
7. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations of massive stars beyond TAMS: effects of mass loss, diffusion, overshooting*, Geneva, Switzerland, IAU Symposium 307, New windows on massive stars, asteroseismology, interferometry and spectropolarimetry, June 23-27, 2014, contributed talk

8. **Ostrowski, J.**, *Pulsation properties of B-type supergiants*, Cape Town, South Africa, South African Astronomical Observatory, May 29, 2014, **invited talk**
  9. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations of blue supergiants before and after helium core ignition*, Wrocław, Poland, IAU Symposium 301: Precision Asteroseismology, August 19 - 23, 2013, contributed talk
  10. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., Pamyatnykh, A. A., *Excitation of pulsation modes in B-type supergiant stars*, Obergurgl, Austria, The Modern Era of Helio- and Asteroseismology, May 20 - 25, 2012, contributed talk
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## POSTERS

1. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., Cugier, H., *Constraints on rotation of B-type stars from the nitrogen abundance*, San Pedro de Atacama, Chile, 22nd Los Alamos Stellar Pulsation Conference Series Meeting, wide-field variability surveys: a 21st-century perspective, November 28 - December 2, 2016
  2. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *A complex approach to the blue-loop problem*, Honolulu, USA, IAU XXIX General Assembly, August 3 - 14, 2015,
  3. **Ostrowski, J.**, Daszynska-Daszkiewicz, J., *Pulsations of massive stars beyond TAMS: effects of mass loss, diffusion and overshooting*, Geneva, Switzerland, IAU Symposium 307: New Windows on Massive Stars, Asteroseismology, Interferometry and Spectropolarimetry, June 23 - 27, 2014
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## GRANTS & AWARDS

### Grant PRELUDIUM

Awarded by National Science Centre  
Principal investigator

Mar. 2014 - Sep. 2016

### Grants for young scientists

Awarded by University of Wrocław  
Principal investigator  
Principal investigator  
Principal investigator

June 2015 - Dec. 2016

June 2014 - Dec. 2015

June 2013 - Dec. 2014

### European Social Fund Scholarship

Oct. 2013 - July 2014

### Scholarship for outstanding Ph.D. students

Oct. 2015 - June 2016

Oct. 2014 - June 2015

Oct. 2013 - June 2014

Oct. 2011 - June 2012

### Ph.D. Scholarship Increase

For the best Ph.D. students in the department

Oct. 2015 - Sep. 2016

Oct. 2014 - Sep. 2015

Oct. 2013 - Sep. 2014

Jan. 2012 - Sep. 2012

### Ph.D. Scholarship

Oct. 2011 - June 2017

<b>Telescope time awarded</b>	May - June 2014
South African Astronomical Observatory	
4 weeks, 20" telescope	

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**TEACHING  
EXPERIENCE**

<b>Teaching Assistant</b>	
MESA Summer School 2019	
<i>University of California, Santa Barbara</i>	Aug. 2019
<b>Teaching Assistant</b>	
MESA Summer School 2018	
<i>University of California, Santa Barbara</i>	Aug. 2018
<b>Teaching Assistant</b>	
MESA Summer School 2016	
<i>University of California, Santa Barbara</i>	Aug. 2016
<b>Lecturer</b>	
Stellar structure and evolution at the Summer Internship	
<i>University of Wrocław</i>	July 2016
<b>Teaching Assistant</b>	
Calculus 3	
<i>University of Wrocław</i>	Oct. 2014 - June 2015 Oct. 2013 - June 2014
<b>Lecturer</b>	
Basics of the MESA code	
<i>University of Wrocław</i>	Oct. 2013 - Jan. 2014
<b>Teaching Assistant</b>	
Astronomy in geography - the basics	
<i>University of Wrocław</i>	Oct. 2012 - June 2013 Oct. 2011 - June 2011

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**PUBLIC  
OUTREACH**

<b>Public lectures:</b>	
1. The origin of chemical elements	Cracow, 2019
2. The internal life of stars	Wrocław, 2016
3. Eta Carinae - a ticking bomb	Wrocław, 2015
4. Gamma-ray bursts	Wrocław, 2015
5. Solar eclipses	Wrocław, 2015
6. Historical supernovae	Wrocław, 2014
7. The Solar System	Wrocław, 2014
8. The origin of chemical elements	Wrocław, 2013
9. Chemical evolution of the Universe	Wrocław, 2013
10. Variable stars	Wrocław, 2011

**Classes in planetarium for schools and general audience:**

- University of Wrocław, 44 hours

2012 - 2016

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## SKILLS

### Astrophysical tools:

- MESA
- GYRE

### Programming languages and frameworks:

- Python (Matplotlib, Numpy, Pandas, Dash, Flask)
- SQL

### Markup languages:

- L<sup>A</sup>T<sub>E</sub>X
  - Markdown
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## LANGUAGES

- English - C1/Professional
- German - A2/B1
- Polish - Native