





Géza Csörnyei

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- 🇵🇪 Nationality: Hungarian
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Employment History

- Sep 2024 –  *ESO Fellow*
European Southern Observatory, Garching, Germany
- May 2024 – Aug 2024  *Postdoctoral Researcher*
Max Planck Institut für Astrophysik, Garching, Germany
- Sep 2020 – Apr 2024  *IMPRS PhD student*,
Max Planck Institut für Astrophysik, Garching, Germany
- Sep 2020 – Sep 2021  *Voluntary researcher*,
Konkoly Observatory, Research Centre for Astronomy and Earth Sciences
- Sep 2018 – Aug 2020  *Research assistant*,
Eötvös Loránd University Budapest, Hungary
- Oct 2017 – Aug 2020  *Observatory assistant*,
Konkoly Observatory, Research Centre for Astronomy and Earth Sciences Budapest, Hungary

Education

- 2020 – 2024  *Ph.D., in Astrophysics, IMPRS München, Max Planck Institut für Astrophysik*
Thesis title: *Measuring distances in the near-Universe: systematic effects and observational tests for Type II supernovae and Cepheid variables*
- 2018 – 2020  *M.Sc. Physics, Eötvös Loránd University*
Thesis title: *Generalized multi-wavelength classification of galaxies based on emission lines*
- 2015 – 2018  *B.Sc. Physics, Eötvös Loránd University*
Thesis title: *Empirical improvements of photometric redshift estimations*
- 2011 – 2015  *Secondary Education, Sashegyi Arany János High School*

Visitorships


- May 2023  **Observatory of Geneva**, Versoix, Switzerland, *Visitor of Dr. Richard Anderson*
- Aug 2019 – Sep 2019  **Johns Hopkins University**, Baltimore, MD, US, *Visitor of Prof. Dr. Alexander Szalay and Dr. László Dobos*
- Jul 2018 – Aug 2018  **Nicolaus Copernicus University**, Torun, Poland *Summer school intern*

Research Publications

My ADS library of refereed and accepted publications:

<https://ui.adsabs.harvard.edu/public-libraries/XuRPxGQASRaSdGEZVLUr6A>


Publications, to which I made significant contributions

- 1 B. Cseh, **Csörnyei, G.**, L. Szabados, *et al.*, “Orbit determination for the binary Cepheid V1344 Aql,” *Astronomy & Astrophysics*, vol. 680, A89, A89, Dec. 2023.  DOI: 10.1051/0004-6361/202347360. arXiv: 2310.10218 [astro-ph.SR].

- 2 **Csörnyei, G.**, R. I. Anderson, C. Vogl, *et al.*, “Reeling in the Whirlpool galaxy: Distance to M 51 clarified through Cepheids and the type IIP supernova 2005cs,” *Astronomy & Astrophysics*, vol. 678, A44, A44, Oct. 2023. [DOI: 10.1051/0004-6361/202346971](#). arXiv: 2305.13943 [astro-ph.GA].
- 3 **Csörnyei, G.**, S. Taubenberger, A. Flörs, *et al.*, “Consistency of Type IIP supernova sibling distances,” *Astronomy & Astrophysics*, vol. 672, A129, A129, Apr. 2023. [DOI: 10.1051/0004-6361/202245379](#). arXiv: 2302.03112 [astro-ph.SR].
- 4 **Csörnyei, G.**, L. Szabados, L. Molnár, *et al.*, “Study of changes in the pulsation period of 148 Galactic Cepheid variables,” *Monthly Notices of the Royal Astronomical Society*, vol. 511, no. 2, pp. 2125–2146, Apr. 2022. [DOI: 10.1093/mnras/stac115](#). arXiv: 2201.04748 [astro-ph.SR].
- 5 **Csörnyei, G.**, L. Dobos, and I. Csabai, “The effect of emission lines on the performance of photometric redshift estimation algorithms,” *Monthly Notices of the Royal Astronomical Society*, vol. 502, no. 4, pp. 5762–5778, Apr. 2021. [DOI: 10.1093/mnras/stab261](#). arXiv: 2101.11368 [astro-ph.GA].
- 6 C. Cabello, **Csörnyei, G.**, J. Merc, V. Ferreirós Lopez, and P. Pessev, “Independent study and spectral classification of a sample of poorly studied high proper motion M-dwarf candidate stars,” *Contributions of the Astronomical Observatory Skalnaté Pleso*, vol. 49, no. 3, pp. 546–550, Dec. 2019. [DOI: 10.48550/arXiv.1912.10504](#). arXiv: 1912.10504 [astro-ph.SR].
- 7 **Csörnyei, G.** and L. Szabados, “AU Pegasi revisited: period evolution and orbital elements of a peculiar Type II Cepheid,” *Astrophysics & Space Sciences*, vol. 364, no. 9, p. 151, Sep. 2019. [DOI: 10.1007/s10509-019-3641-x](#). arXiv: 1909.01255 [astro-ph.SR].





Publications as observatory assistant

- 1 A. Moór, P. Ábrahám, Á. Kóspál, *et al.*, “Mid-infrared time-domain study of recent dust production events in the extreme debris disc of TYC 4209-1322-1,” 4, vol. 516, Nov. 2022, pp. 5684–5701. [DOI: 10.1093/mnras/stac2595](#). arXiv: 2210.11856 [astro-ph.SR].
- 2 Z. M. Szabó, Á. Kóspál, P. Ábrahám, *et al.*, “A Multi-epoch, Multiwavelength Study of the Classical FUor V1515 Cyg Approaching Quiescence,” 1, vol. 936, Sep. 2022, 64, p. 64. [DOI: 10.3847/1538-4357/ac82f5](#). arXiv: 2206.12446 [astro-ph.SR].
- 3 Z. M. Szabó, Á. Kóspál, P. Ábrahám, *et al.*, “A Study of the Photometric and Spectroscopic Variations of the Prototypical FU Orionis-type Star V1057 Cyg,” 2, vol. 917, Aug. 2021, 80, p. 80. [DOI: 10.3847/1538-4357/ac04b3](#). arXiv: 2105.10405 [astro-ph.SR].
- 4 Q. Wang, A. Rest, Y. Zenati, *et al.*, “SN 2018agk: A Prototypical Type Ia Supernova with a Smooth Power-law Rise in Kepler (K2),” 2, vol. 923, Dec. 2021, 167, p. 167. [DOI: 10.3847/1538-4357/ac2c84](#). arXiv: 2108.13607 [astro-ph.HE].
- 5 R. Könyves-Tóth, J. Vinkó, A. Ordasi, *et al.*, “Constraints on the Physical Properties of SNe Ia from Photometry,” 2, vol. 892, Apr. 2020, 121, p. 121. [DOI: 10.3847/1538-4357/ab76bb](#). arXiv: 1908.00582 [astro-ph.HE].
- 6 J. Zhang, X. Wang, V. József, *et al.*, “SN 2018zd: an unusual stellar explosion as part of the diverse Type II Supernova landscape,” 1, vol. 498, Oct. 2020, pp. 84–100. [DOI: 10.1093/mnras/staa2273](#). arXiv: 2007.14348 [astro-ph.HE].
- 7 G. Dimitriadis, R. J. Foley, A. Rest, *et al.*, “K2 Observations of SN 2018oh Reveal a Two-component Rising Light Curve for a Type Ia Supernova,” 1, vol. 870, Jan. 2019, L1, p. L1. [DOI: 10.3847/2041-8213/aaedb0](#). arXiv: 1811.10061 [astro-ph.HE].
- 8 W. Li, X. Wang, J. Vinkó, *et al.*, “Photometric and Spectroscopic Properties of Type Ia Supernova 2018oh with Early Excess Emission from the Kepler 2 Observations,” 1, vol. 870, Jan. 2019, 12, p. 12. [DOI: 10.3847/1538-4357/aaec74](#). arXiv: 1811.10056 [astro-ph.SR].


- 9 T. Szalai, J. Vinkó, R. Könyves-Tóth, *et al.*, "The Type II-P Supernova 2017eaw: From Explosion to the Nebular Phase," 1, vol. 876, May 2019, 19, p. 19.  DOI: 10.3847/1538-4357/ab12d0. arXiv: 1903.09048 [astro-ph.HE].

Conference participations, posters, presentations










Conference and workshop participations

- Jul 2024  EAS 2024, Padova, Italy
Contributed talk: "Explosions do not fall far from their galaxy: investigating the connection of SN II spectral time series and host galaxy parameters"
- Nov 2023  SuperVirtual 2023, online
Contributed talk: "Standardizing the spectral time series of SNe II: A data-driven view on spectral evolution"
- Jul 2023  MIAPP Extragalactic Distance Scale Workshop, Garching
Contributed talk: "A shortcut into the Hubble flow: testing Type II supernovae as distance indicators"
- Apr 2023  IAU Symposium 376 on Period Luminosity Relations, Budapest
Contributed talkM: "How 'Accurate' is 'Precise'? The Effect of Period Fluctuations on PL Relations"
Poster: "Cepheids in M51: cross-checking the PLR distance with independent estimates"
- Feb 2023  MIAPP Interacting Supernovae Workshop, Garching
Contributed talk: "Observational clues of CSM interaction in Type II SNe"
- Sep 2022  RR Lyrae – Cepheid conference 2022, La Palma
Poster: "Light curve fluctuations of Classical Cepheid as observed by SMEI"
- Jun 2022  EAS 2022, Valencia
Contributed talk: "Distance estimates of sibling supernovae"
Poster: "Period changes and long-term fluctuations of Galactic Classical Cepheid variables"
- Nov 2021  SuperVirtual 2021, online
Poster: "Distance estimates of sibling supernovae"
- Sep 2021  MIAPP Hubble Tension Workshop, Garching
- Apr 2021  Statistical Challenges in Modern Astronomy VII, Pennsylvania
Poster: "The effect of emission lines on the performance of photometric redshift estimation algorithms"
- Sep 2021  27th Young Scientists' Conference on Astronomy and Space Physics, Kyiv
Poster: "The effect of emission lines on the performance of photometric redshift estimation algorithms"
Contributed talk: "Comprehensive study of changes in the pulsation period of Galactic Cepheid variables"
- Dec 2020  15th Würzburg Workshop, online
Contributed talk: "Density-profile dependence of SN II spectral fitting"
- Aug 2018  IAU 2018, Wien
Poster: "Characterizing the effect of emission lines on photometric redshift estimations"









Presentations and seminars

- Aug 2024  Wolfgang Hillebrandt's 80th Birthday Symposium
Presentation: "Bypassing the Cosmic Distance Ladder: Testing Type II Supernovae as Independent Distance Indicators"

Conference participations, posters, presentations (continued)

- Jul 2024  INAF Padova Astro Seminar
Presentation: *"Bypassing the Cosmic Distance Ladder: Testing Type II Supernovae as Independent Distance Indicators"*
- Jun 2024  MPA Institute Seminar
Presentation: *"Bypassing the Cosmic Distance Ladder: Testing Type II Supernovae as Independent Distance Indicators"*
- Sep 2023  ESO lunch talk
Presentation: *"Bypassing the Cosmic Distance Ladder: Testing Type II Supernovae as Independent Distance Indicators"*
- Feb 2023  Astromerique seminar series, University of Montréal
Presentation: *"Type II supernovae as cosmological distance indicators"*
- Nov 2022  CN-4 Connector day, Garching
Presentation: *"Cepheids and Supernovae in M51"*
- Jul 2022  MPA SESTAS seminar
Presentation: *"Period changes and fluctuations of Galactic Cepheid variables"*
- Dec 2021  Garching Supernova Meeting
Presentation: *"Distance estimation of supernova siblings"*
- May 2021  Konkoly Observatory Seminar Series
Presentation: *"The effect of emission lines on the performance of photometric redshift estimation algorithms"*
- Mar 2021  Konkoly SPEX meeting seminar
Presentation: *"Comprehensive study of changes in the pulsation period of Galactic Cepheid variables"*

Observing experience

- 2023-2024  **21h on ESO VLT (PI)** in a three-semester Monitoring Programme (in service mode), to search for Type II sibling supernovae (111.24TJ.001)
- 2021  **7 nights in visitor at Konkoly Observatory/Piszkéstető Mountain Station, RCC/1m** – ACE spectrograph (Co-I), to obtain Cepheid radial velocities, 2021/T3
-  **21 nights in visitor at Konkoly Observatory/Piszkéstető Mountain Station, RCC/1m** – ACE spectrograph (Co-I), to obtain Cepheid radial velocities, 2021/T2
-  **14 nights in visitor at Konkoly Observatory/Piszkéstető Mountain Station, RCC/1m** – ACE spectrograph (Co-I), to obtain Cepheid radial velocities, 2021/T1
- 2020  **21 nights in visitor at Konkoly Observatory/Piszkéstető Mountain Station, RCC/1m** – ACE spectrograph (Co-I), to obtain Cepheid radial velocities, 2020/T3
-  **14 nights in visitor at Konkoly Observatory/Piszkéstető Mountain Station, RCC/1m** – ACE spectrograph (Co-I), to obtain Cepheid radial velocities, 2020/T2
-  **4 nights in service mode at Konkoly Observatory/Piszkéstető Mountain Station, Schmidt-60/90cm (Co-I)**, to obtain photometric observations of Cepheids, 2020/T1
- 2019  **14 nights in visitor at Konkoly Observatory/Piszkéstető Mountain Station, Schmidt-60/90cm (Co-I)**, to obtain photometric observations of Cepheids, 2019/T3

Skills

Languages	▪ English – proficient user Hungarian – native German – intermediate
Coding	▪ Python, R, C/C++, \LaTeX
Scientific programmes	▪ Periodo4, IRAF/pyRAF, TARDIS

Teaching Experience

2023 – 2023	▪ Summer Semester: Tutoring Extragalactic Astrophysics Master’s course at Technische Universität München
2022 – 2023	▪ Winter Semester: Tutoring Experimental Physics I. in English course at Technische Universität München
2015 – 2020	▪ Participating in coaching high school students for International Olympiad on Astronomy and Astrophysics

Miscellaneous Experience

Awards and Achievements

2021	▪ Pro Scientia Award of the Hungarian Academy of Sciences
2020	▪ Award of Excellence , at Eötvös Loránd University.
2019	▪ Certificate of Merit from the Hungarian Ministry of Human Capacities for participating in the coaching of the Hungarian team for the International Olympiad on Astronomy and Astrophysics

Other

2022 – ····	▪ Co-organiser role for the Garching Supernova Meeting seminar series
2021	▪ Short interview about the National Council of Student Research Societies by ELTE Communication Offices
2019	▪ Official scorer at the 13th International Olympiad on Astronomy and Astrophysics
2013 – ····	▪ Member of the Hungarian Astronomical Association, own observations often appear in the Meteor astronomical monthly