

Fields of interest

Large-scale structure: galaxy clustering; cosmic microwave background; Hubble tension; nature of dark energy; primordial Universe

Employment

- **The Ohio State University** Columbus, OH, USA
CCAPP (Center for Cosmology and AstroParticle Physics) Fellow 2025 – 2028
- **Harvard College Observatory** Cambridge, MA, USA
Postdoctoral Fellow 2025

Education

- **Harvard University** Cambridge, MA, USA
Ph.D. in Astronomy and Astrophysics 2020 – 2025
M.A. in Astronomy and Astrophysics, in passing 2022
 - Thesis: *Enhancing the analysis of the large-scale structure of the Universe for cutting-edge cosmological surveys with two-point correlation function and beyond* (May 2025)
 - Advisor: Prof. Daniel Eisenstein
 - Center for Astrophysics | Harvard & Smithsonian
- **Tel Aviv University** Tel Aviv-Yafo, Israel
B.Sc. in Physics, Summa Cum Laude (GPA: 98/100) 2019 – 2020
 - Raymond & Beverly Sackler School of Physics & Astronomy
 - Advisor: Dr. Omer Bromberg
- **Moscow Institute of Physics and Technology** Dolgoprudny, Russia
B.Sc. in Applied Mathematics and Physics, unfinished 2015 – 2018
 - Department of General and Applied Physics
 - Advisor: Prof. Vasily Beskin
- **Richelieu Lyceum** Odesa, Ukraine
High school, specialization in physics 2010 – 2015

First-author publications

4. M. Rashkovetskyi, D. J. Eisenstein, *et al.*, “Clustering of DESI galaxies split by thermal Sunyaev-Zeldovich effect”, *The Open Journal of Astrophysics* **8** October (2025)a 46033, arXiv:2508.20904

3. M. **Rashkovetskyi**, D. Forero-Sánchez, A. de Mattia, D. J. Eisenstein, N. Padmanabhan, H. Seo, A. J. Ross, *et al.*, “Semi-analytical covariance matrices for two-point correlation function for DESI 2024 data”, *J. Cosmology Astropart. Phys.* **2025** January (2025)b 145, [arXiv:2404.03007](https://arxiv.org/abs/2404.03007)
2. M. **Rashkovetskyi**, D. J. Eisenstein, *et al.*, “Validation of semi-analytical, semi-empirical covariance matrices for two-point correlation function for early DESI data”, *MNRAS* **524** September (2023) 3894–3911, [arXiv:2306.06320](https://arxiv.org/abs/2306.06320)
1. M. **Rashkovetskyi**, J. B. Muñoz, D. J. Eisenstein, and C. Dvorkin, “Small-scale clumping at recombination and the Hubble tension”, *Phys. Rev. D* **104** November (2021) 103517, [arXiv:2108.02747](https://arxiv.org/abs/2108.02747)

First-tier author publications

10. E. A. Zaborowski, P. Taylor, K. Honscheid, A. Cuceu, A. de Mattia, A. Krolewski, M. **Rashkovetskyi**, A. J. Ross, C. To, *et al.*, “ H_0 Without the Sound Horizon (or Supernovae): A 2% Measurement in DESI DR1”, October 2025, [arXiv:2510.19149](https://arxiv.org/abs/2510.19149)
9. D. Valcin, M. **Rashkovetskyi**, H. Seo, F. Beutler, P. McDonald, A. de Mattia, A. J. Rosado-Marín, A. J. Ross, N. Padmanabhan, *et al.*, “Combined tracer analysis for DESI 2024 BAO”, August 2025, [arXiv:2508.05467](https://arxiv.org/abs/2508.05467)
8. U. Andrade, E. Paillas, J. Mena-Fernández, Q. Li, A. J. Ross, S. Nadathur, M. **Rashkovetskyi**, A. Pérez-Fernández, H. Seo, N. Sanders, O. Alves, X. Chen, N. Deiosso, A. de Mattia, M. White, *et al.*, “Validation of the DESI DR2 measurements of baryon acoustic oscillations from galaxies and quasars”, *Phys. Rev. D* **112** October (2025) 083512, [arXiv:2503.14742](https://arxiv.org/abs/2503.14742)
7. D. Forero-Sánchez, M. **Rashkovetskyi**, O. Alves, *et al.*, “Analytical and EZmock covariance validation for the DESI 2024 results”, *J. Cosmology Astropart. Phys.* **2025** April (2025) 055, [arXiv:2411.12027](https://arxiv.org/abs/2411.12027)
6. J. Yu, A. J. Ross, A. Rocher, O. Alves, A. de Mattia, D. Forero-Sánchez, J.-P. Kneib, A. Krolewski, T. Lan, M. **Rashkovetskyi**, *et al.*, “ELG spectroscopic systematics analysis of the DESI Data Release 1”, *J. Cosmology Astropart. Phys.* **2025** January (2025) 126, [arXiv:2405.16657](https://arxiv.org/abs/2405.16657)
5. J. Mena-Fernández, C. Garcia-Quintero, S. Yuan, B. Hadzhiyska, O. Alves, M. **Rashkovetskyi**, H. Seo, N. Padmanabhan, S. Nadathur, C. Howlett, S. Alam, A. Rocher, A. J. Ross, E. Sanchez, M. Ishak, *et al.*, “HOD-dependent systematics for luminous red galaxies in the DESI 2024 BAO analysis”, *J. Cosmology Astropart. Phys.* **2025** January (2025) 133, [arXiv:2404.03008](https://arxiv.org/abs/2404.03008)
4. C. Garcia-Quintero, J. Mena-Fernández, A. Rocher, S. Yuan, B. Hadzhiyska, O. Alves, M. **Rashkovetskyi**, H. Seo, N. Padmanabhan, S. Nadathur, C. Howlett, M. Ishak, L. Medina-Varela, P. McDonald, A. J. Ross, Y. Xie, X. Chen, A. Bera, *et al.*, “HOD-dependent systematics in Emission Line Galaxies for the DESI 2024 BAO analysis”, *J. Cosmology Astropart. Phys.* **2025** January (2025) 132, [arXiv:2404.03009](https://arxiv.org/abs/2404.03009)
3. J. Moon, D. Valcin, M. **Rashkovetskyi**, C. Saulder, *et al.*, “First detection of the BAO signal from early DESI data”, *MNRAS* **525** November (2023) 5406–5422, [arXiv:2304.08427](https://arxiv.org/abs/2304.08427)
2. E. M. Novoselov, V. S. Beskin, A. K. Galishnikova, M. M. **Rashkovetskyi**, and A. V. Biryukov, “Orthogonal pulsars as a key test for pulsar evolution”, *MNRAS* **494** April (2020) 3899–3911, [arXiv:2004.03211](https://arxiv.org/abs/2004.03211)
1. V. S. Beskin, A. K. Galishnikova, E. M. Novoselov, A. A. Philippov, and M. M. **Rashkovetskyi**, “So how do radio pulsars slow-down?”, in “Journal of Physics Conference Series”, vol. 932, p. 012012. December 2017

Collaboration publications

19. C. Garcia-Quintero, H. E. Noriega, A. de Mattia, A. Aviles, K. Lodha, D. Chebat, J. Rohlff, S. Nadathur, W. Elbers, *et al.*, “Cosmological implications of DESI DR2 BAO measurements in light of the latest ACT DR6 CMB data”, April 2025, [arXiv:2504.18464](https://arxiv.org/abs/2504.18464)
18. DESI Collaboration *et al.*, “DESI DR2 results. II. Measurements of baryon acoustic oscillations and cosmological constraints”, Phys. Rev. D **112** October (2025)a 083515, [arXiv:2503.14738](https://arxiv.org/abs/2503.14738)
17. DESI Collaboration *et al.*, “DESI DR2 results. I. Baryon acoustic oscillations from the Lyman alpha forest”, Phys. Rev. D **112** October (2025)b 083514, [arXiv:2503.14739](https://arxiv.org/abs/2503.14739)
16. K. Lodha, R. Calderon, W. L. Matthewson, A. Shafieloo, M. Ishak, J. Pan, C. Garcia-Quintero, D. Huterer, G. Valogiannis, L. A. Ureña-López, N. V. Kamble, D. Parkinson, A. G. Kim, G. B. Zhao, J. L. Cervantes-Cota, J. Rohlff, F. Lozano-Rodríguez, J. O. Román-Herrera, *et al.*, “Extended dark energy analysis using DESI DR2 BAO measurements”, Phys. Rev. D **112** October (2025) 083511, [arXiv:2503.14743](https://arxiv.org/abs/2503.14743)
15. W. Elbers, A. Aviles, H. E. Noriega, D. Chebat, A. Menegas, C. S. Frenk, C. Garcia-Quintero, D. Gonzalez, M. Ishak, O. Lahav, K. Naidoo, G. Niz, C. Yéche, *et al.*, “Constraints on neutrino physics from DESI DR2 BAO and DR1 full shape”, Phys. Rev. D **112** October (2025) 083513, [arXiv:2503.14744](https://arxiv.org/abs/2503.14744)
14. DESI Collaboration *et al.*, “Data Release 1 of the Dark Energy Spectroscopic Instrument”, March 2025, [arXiv:2503.14745](https://arxiv.org/abs/2503.14745)
13. X. Chen, Z. Ding, E. Paillas, S. Nadathur, H. Seo, S. Chen, N. Padmanabhan, M. White, A. de Mattia, P. McDonald, A. J. Ross, A. Variu, A. Carnero Rosell, B. Hadzhiyska, M. M. S. Hanif, D. Forero-Sánchez, *et al.*, “Extensive analysis of reconstruction algorithms for DESI 2024 baryon acoustic oscillations”, November 2024, [arXiv:2411.19738](https://arxiv.org/abs/2411.19738)
12. DESI Collaboration *et al.*, “DESI 2024 II: sample definitions, characteristics, and two-point clustering statistics”, J. Cosmology Astropart. Phys. **2025** July (2025)a 017, [arXiv:2411.12020](https://arxiv.org/abs/2411.12020)
11. DESI Collaboration *et al.*, “DESI 2024 V: Full-Shape galaxy clustering from galaxies and quasars”, J. Cosmology Astropart. Phys. **2025** September (2025)b 008, [arXiv:2411.12021](https://arxiv.org/abs/2411.12021)
10. DESI Collaboration *et al.*, “DESI 2024 VII: cosmological constraints from the full-shape modeling of clustering measurements”, J. Cosmology Astropart. Phys. **2025** July (2025)c 028, [arXiv:2411.12022](https://arxiv.org/abs/2411.12022)
9. A. Pérez-Fernández, L. Medina-Varela, R. Ruggeri, M. Vargas-Magaña, H. Seo, N. Padmanabhan, M. Ishak, *et al.*, “Fiducial-cosmology-dependent systematics for the DESI 2024 BAO analysis”, J. Cosmology Astropart. Phys. **2025** January (2025) 144, [arXiv:2406.06085](https://arxiv.org/abs/2406.06085)
8. U. Andrade, J. Mena-Fernández, H. Awan, A. J. Ross, S. Brieden, J. Pan, A. de Mattia, *et al.*, “Validating the galaxy and quasar catalog-level blinding scheme for the DESI 2024 analysis”, J. Cosmology Astropart. Phys. **2025** January (2025) 128, [arXiv:2404.07282](https://arxiv.org/abs/2404.07282)
7. DESI Collaboration *et al.*, “DESI 2024 III: baryon acoustic oscillations from galaxies and quasars”, J. Cosmology Astropart. Phys. **2025** April (2025)a 012, [arXiv:2404.03000](https://arxiv.org/abs/2404.03000)
6. DESI Collaboration *et al.*, “DESI 2024 IV: Baryon Acoustic Oscillations from the Lyman alpha forest”, J. Cosmology Astropart. Phys. **2025** January (2025)b 124, [arXiv:2404.03001](https://arxiv.org/abs/2404.03001)

5. DESI Collaboration *et al.*, “DESI 2024 VI: cosmological constraints from the measurements of baryon acoustic oscillations”, *J. Cosmology Astropart. Phys.* **2025** February (2025)c 021, [arXiv:2404.03002](https://arxiv.org/abs/2404.03002)
4. E. Paillas, Z. Ding, X. Chen, H. Seo, N. Padmanabhan, A. de Mattia, A. J. Ross, S. Nadathur, C. Howlett, *et al.*, “Optimal reconstruction of baryon acoustic oscillations for DESI 2024”, *J. Cosmology Astropart. Phys.* **2025** January (2025) 142, [arXiv:2404.03005](https://arxiv.org/abs/2404.03005)
3. S. F. Chen, C. Howlett, M. White, P. McDonald, A. J. Ross, H. J. Seo, N. Padmanabhan, *et al.*, “Baryon acoustic oscillation theory and modelling systematics for the DESI 2024 results”, *MNRAS* **534** October (2024) 544–574, [arXiv:2402.14070](https://arxiv.org/abs/2402.14070)
2. DESI Collaboration *et al.*, “Validation of the Scientific Program for the Dark Energy Spectroscopic Instrument”, *AJ* **167** February (2024)a 62, [arXiv:2306.06307](https://arxiv.org/abs/2306.06307)
1. DESI Collaboration *et al.*, “The Early Data Release of the Dark Energy Spectroscopic Instrument”, *AJ* **168** August (2024)b 58, [arXiv:2306.06308](https://arxiv.org/abs/2306.06308)

Outreach and teaching

- **DESI redshift-space distortions animations** with Claire Lamman+
Early version used in the press-release and following news articles Nov 19, 2024 – Mar 2, 2025
- **Astronomy 200: Radiative Processes in Astrophysics** Harvard University
Teaching Fellow Fall 2023
- **Astronomy 201: Astrophysical Fluids & Plasmas** Harvard University
Teaching Fellow Spring 2023
- **Astronomy 130: Introduction to Cosmology** Harvard College
Teaching Fellow Fall 2022

Seminar talks

- **Ohio University Astro Seminar** Athens, OH, USA
Enhancing the analysis of the large-scale structure of the Universe October 8, 2025
- **CCAPP Fellows Symposium 2025** Columbus, OH, USA
Clustering of DESI galaxies split by thermal Sunyaev-Zeldovich effect September 17, 2025
- **KIPAC Tea (Stanford)** Menlo Park, CA, USA
Fast semi-analytical covariance matrices for 2-point correlation functions May 10, 2024
- **ITC Luncheon** Cambridge, MA, USA
Semi-analytic covariance matrices for 2PCF of DESI galaxies (on YouTube) September 28, 2023

Contributed conference talks

- **28th International Conference on Particle Physics & Cosmology** Pittsburgh, PA, USA
Clustering of DESI galaxies split by thermal Sunyaev-Zeldovich effect October 16, 2025
- **APS Global Physics Summit** Anaheim, CA, USA
Clustering of DESI LRG selected based on ACT DR6 + Planck tSZ map March 18, 2025

- **IX Essential Cosmology for the Next Generation**
• *Clustering of DESI galaxies selected based on ACT thermal SZ map* Playa del Carmen, Mexico
December 5, 2024
- **Cosmology from Home 2023**
• *First Detection of the BAO Signal from Early DESI Data (on YouTube)* online
Co-presenter with Christoph Saulder, Jeongin Moon and David Valcín July 4, 2023
- **APS April Meeting**
• *First Detection of the BAO Signal from Early DESI Data* Minneapolis, MN, USA
April 18, 2023

Poster presentations

- **Arizona Winter School on Multi-Probe Cosmology** Tucson, AZ, USA
January 12-15, 2025
- *Clustering of DESI galaxies split by thermal Sunyaev-Zeldovich effect*
Second best poster prize
- **Frontiers in Cosmology and Gravitational Physics** Portsmouth, UK
May 20-23, 2024
- *Fast semi-analytical covariance matrices for 2PCF of galaxies and quasars*
- **VIII Essential Cosmology for the Next Generation** Playa del Carmen, Mexico
Nov 30 - Dec 3, 2022
- *RascalC: Empirical 2PCF Covariance Matrices without Mocks*
- **CMB-S4 Summer Meeting** online
August 9-13, 2021
- *Small-scale Clumping at Recombination and the Hubble Tension*
- **CMB-S4 Spring Meeting** online
March 8-12, 2021
- *Hubble Tension with Small-Scale Clumping*
- **Physics of Neutron Stars - 2017** Saint-Petersburg, Russia
July 10-14, 2017
- *On the light-curve anomalies of radio pulsars*

Other meetings

- **DESI December** Tucson, AZ, USA
December 8-11, 2025
- *DESI Collaboration*
- **DESI July** Berkeley, CA, USA
July 8-11, 2025
- *DESI Collaboration*
- **DESI December** Cancún, Mexico
December 10-13, 2024
- *DESI Collaboration*
- **DESI July** Marseille, France
July 9-12, 2024
- *DESI Collaboration*
- **Fundamental Physics from Future Spectroscopic Surveys** Berkeley, CA, USA
May 6-8, 2024
- *Lawrence Berkeley National Laboratory*
- **DESI December** Waikoloa, HI, USA
December 11-14, 2023
- *DESI Collaboration*
- **DESI July** Durham, UK
July 17-21, 2023
- *DESI Collaboration*
- **2nd Michigan Cosmology Summer School** Ann Arbor, MI, USA
June 5-9, 2023
- *University of Michigan*
- **DESI December** Cancún, Mexico
December 5-9, 2022
- *DESI Collaboration*

• DESI June	Berkeley, CA, USA
• <i>DESI Collaboration</i>	<i>June 21-24, 2022</i>
• 15th School of Modern Astrophysics	Dolgoprudny, Russia
• <i>Moscow Institute of Physics and Technology</i>	<i>July 1-12, 2019</i>
• 13th School of Modern Astrophysics	Dolgoprudny, Russia
• <i>Moscow Institute of Physics and Technology</i>	<i>July 3-21, 2017</i>
• International School of Subnuclear Physics - 2017	Erice, Italy
• <i>"Ettore Majorana" Foundation and Centre for Scientific Culture</i>	<i>June 14-23, 2017</i>
• International school on particles, fields and strings	Moscow, Russia
• <i>National Research University "High School of Economics"</i>	<i>April 17-24, 2017</i>
• Astronomical practice	Nizhniy Arkhyz, Russia
• <i>Special Astrophysical Observatory</i>	<i>June 25 – July 2, 2016</i>

Awards, grants and honors

Dean's Certificate in Recognition of Outstanding Academic Achievements (TAU) 2019–2020
 Stipend for excellent students of MIPT in the name of A.Abramov 2016–2017
 International Physics Olympiad, bronze medal Mumbai, 2015
 International Physics Olympiad, silver medal Astana, 2014

Selected open source contributions (<https://github.com/misharash>)

• RASCALC	C++ & Python
• <i>Fast semi-analytic covariance matrices library/program</i>	<i>2022-2024</i>
• RASCALC scripts	Python
• <i>DESI covariance matrix pipeline for 2-point correlation function (scripts)</i>	<i>2024</i>
• PYCORR	Python
• <i>Library for 2-point correlation function estimation</i>	<i>2024</i>

Languages

- **Russian:** native
- **Ukrainian:** fluent
- **English:** advanced
- **Hebrew:** advanced
- **German:** intermediate