

Michael (Misha, Mykhailo) Rashkovetskyi

PhD student in astrophysics

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Fields of interest

Cosmology, plasma and high energy astrophysics; quantum field theory.

Education

Harvard University

Cambridge, Massachusetts, US

- *Ph.D. in Astronomy* 2020 – 2025
M.A. in Astronomy and Astrophysics, in passing 2022
 - Center for Astrophysics | Harvard & Smithsonian
 - Advisor: Prof. Daniel Eisenstein

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

Research topics and publications

- Semi-analytical, semi-empirical covariance matrices for DESI with **RascalC** code
 - Jeongin Moon, David Valcin, Michael Rashkovetskyi, Christoph Saulder, et al. First Detection of the BAO Signal from Early DESI Data. *arXiv e-prints*, art. arXiv:2304.08427, April 2023. doi:10.48550/arXiv.2304.08427. arXiv:2304.08427 (submitted to MNRAS)
 - Michael Rashkovetskyi, Daniel J. Eisenstein, et al. Validation of semi-analytical, semi-empirical covariance matrices for two-point correlation function for early DESI data. *MNRAS*, 524(3): 3894–3911, September 2023. doi:10.1093/mnras/stad2078. arXiv:2306.06320
- Double-squeezed 4-point correlation function and squeezed 3-point correlation function
- Inhomogeneous recombination relieving Hubble tension
 - Michael Rashkovetskyi, Julian B. Muñoz, Daniel J. Eisenstein, and Cora Dvorkin. Small-scale clumping at recombination and the Hubble tension. *Phys. Rev. D*, 104(10):103517, November 2021. doi:10.1103/PhysRevD.104.103517. arXiv:2108.02747
- The dynamics of highly magnetized jets propagating in the medium

- Orthogonal radiopulsars and their statistics
 - 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(3):3899–3911, April 2020. doi:10.1093/mnras/staa904. arXiv:2004.03211
- Pulsar losses mechanisms
 - 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*, volume 932, page 012012, December 2017. doi:10.1088/1742-6596/932/1/012012
- Pulsar radiation propagation
 - H. L. Hakobyan, A. A. Philippov, V. S. Beskin, A. K. Galishnikova, E. M. Novoselov, and M. M. Rashkovetskyi. On the Light-Curve Anomalies of Radio Pulsars. In *Astronomical Society of the Pacific Conference Series*, volume 515, page 295, August 2018
 - H. L. Hakobyan, A. A. Philippov, V. S. Beskin, A. K. Galishnikova, E. M. Novoselov, and M. M. Rashkovetskyi. On the light-curve anomalies of radio pulsars. In *Journal of Physics Conference Series*, volume 932, page 012018, December 2017. doi:10.1088/1742-6596/932/1/012018

Teaching experience

- **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

Schools, conferences and practices

- **DESI July** Durham, UK
DESI Collaboration July 17-21, 2023
- **Michigan Cosmology Summer School** Ann Arbor, MI, USA
University of Michigan June 5-9, 2023
- **APS April** Minneapolis, MN, USA
American Physical Society April 15-18, 2023
- **DESI December** Cancun, Mexico
DESI Collaboration December 5-9, 2022
- **VIII Essential Cosmology for the Next Generation** Playa del Carmen, Mexico
"Cosmology on the Beach" November 30 - December 3, 2022
- **DESI June** Berkeley, CA, USA
DESI Collaboration June 21-24, 2022
- **CMB-S4 Summer Meeting** online
CMB-S4 Collaboration August 9-13, 2021

- **CMB-S4 Spring Meeting** online
CMB-S4 Collaboration March 8-12, 2021
- **15th School of Modern Astrophysics** Dolgoprudny, Russia
Moscow Insitute of Physics and Technology July 1-12, 2019
- **Physics of Neutron Stars - 2017** Saint-Petersburg, Russia
Ioffe Institute, Sternberg Astronomical Institute July 10-14, 2017
- **13th School of Modern Astrophysics** Dolgoprudny, Russia
Moscow Insitute of Physics and Technology July 3-21, 2017
- **International School of Subnuclear Physics - 2017** Erice, Italy
"Ettore Majorana" Foundation and Centre for Scientific Culture June 14-23, 2017
- **International school on particles, fields and strings** Moscow, Russia
National Research University "High School of Economics" April 17-24, 2017
- **Astronomical practice** Nizhniy Arkhyz, Russia
Special Astrophysical Observatory June 25 – July 2, 2016

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

Languages

- Russian: mother tongue
- Ukrainian: fluent
- English: advanced
- Hebrew: advanced
- German: intermediate