Dr. Maryam Dehghanian

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Educational Background

- Ph.D. in Physics, University of Kentucky, 2018–2021
- M.Sc. in Physics, University of Kentucky, 2016–2018
- M.Sc. in Particle Physics, Sabzevar University, Iran, 2010–2012
- B.Sc. in Physics, University of Kashan, Iran, 2004–2008

Professional Appointments

- Senior Postdoctoral Scholar, University of Kentucky, 2025–Present
- Research Faculty, Virginia Tech, 2022–2025
- Postdoctoral Scholar, University of Kentucky, 2021–2022

Publications

[1] E. Dalla Bontà et al. "Estimating masses of supermassive black holes in active galactic nuclei from the Hα emission line". In: 696, A48 (Apr. 2025), A48. DOI: 10.1051/0004-6361/202452746. arXiv: 2410.21387 [astro-ph.GA].

[2] M. Dehghanian, N. Arav, M. Sharma, D. Byun, and G. Walker. "Determining the absolute chemical abundance of nitrogen and sulfur in the quasar outflow of 3C298". In: 693, A153 (Jan. 2025), A153. DOI: 10.1051/0004-6361/202452115. arXiv: 2411.14231 [astro-ph.GA].

[3] M. Dehghanian et al. "An energetic absorption outflow in QSO J1402+2330: Analysis of DESI observations". In: 695, A4 (Mar. 2025), A4. DOI: 10.1051/0004-6361/202453384. arXiv: 2501.18034 [astro-ph.GA].

[4] Maryam Dehghanian, Nahum Arav, Mayank Sharma, Doyee Byun, and Gwen Walker. "Determining the absolute chemical abundances in the absorption outflow of quasar 3C298". In: *American Astronomical Society Meeting Abstracts #245*. Vol. 245. American Astronomical Society Meeting Abstracts. Jan. 2025, 106.03, p. 106.03.

[5] Maryam Dehghanian et al. "Quasar absorption outflows on galactic scales: insights from DESI". In: 540.4 (July 2025), pp. 3086–3093. DOI: 10.1093/mnras/staf883. arXiv: 2505.21630 [astro-ph.GA].

[6] Chamani M. Gunasekera et al. "The 2025 Release of Cloudy". In: *arXiv e-prints*, arXiv:2508.01102 (Aug. 2025), arXiv:2508.01102. DOI: 10.48550/arXiv.2508.01102. arXiv: 2508.01102 [astro-ph.GA].

[7] Y. Homayouni et al. *VizieR Online Data Catalog: AGN STORM 2. II. HST/COS UV obs. of Mrk817 (Homayouni+, 2023)*. May 2025.

[8] E. R. Partington et al. *VizieR Online Data Catalog: AGN STORM 2. III. A NICER view of Mrk 817 (Partington+, 2023)*. Mar. 2025.

[9] Divya Patel, Maryam Dehghanian, and Gary Ferland. "Comparing X-Ray Emission Line Fluxes of NGC 5548 to NGC 1068". In: *Research Notes of the American Astronomical Society* 9.8, 220 (Aug. 2025), p. 220. DOI: 10.3847/2515-5172/adfc47. arXiv: 2508.13001 [astro-ph.GA].

[10] Mayank Sharma et al. "DESI survey of S IV absorption outflows in quasars: Contribution to AGN feedback and comparison with [O III] emission outflows". In: *arXiv e-prints*, arXiv:2506.13736 (June 2025), arXiv:2506.13736. DOI: 10.48550/arXiv.2506.13736. arXiv: 2506.13736 [astro-ph.GA].

[11] Mayank Sharma et al. "Physical characterization of the FeLoBAL outflow in SDSS J0932+0840: Analysis of VLT/UVES observations". In: 693, A254 (Jan. 2025), A254. DOI: 10.1051/0004-6361/202452735. arXiv: 2412.06929 [astro-ph.GA].

[12] Mayank Sharma et al. "The Distance of Quasar Outflows from the Central Source: The First Consistent Values from Emission and Absorption Determinations". In: 983.1, 31 (Apr. 2025), p. 31. DOI: 10.3847/1538-4357/adb9e1. arXiv: 2502.18825 [astro-ph.GA].

[13] Mayank Sharma et al. "The distance of quasar outflows from the central source: The first consistent values from emission and absorption determinations." In: *American Astronomical Society Meeting Abstracts #245*. Vol. 245. American Astronomical Society Meeting Abstracts. Jan. 2025, 106.01, p. 106.01.

[14] Gwen Walker, Nahum Arav, Doyee Byun, Mayank Sharma, and Maryam Dehghanian. "Lowest Distance from the Central Source in an FeLoBAL Outflow: VLT/UVES Observations of Quasar SDSS J2107-0620". In: *American Astronomical Society Meeting Abstracts #245*. Vol. 245. American Astronomical Society Meeting Abstracts. Jan. 2025, 106.08, p. 106.08.

[15] Nahum Arav et al. *Measuring major contributors to AGN feedback: Quasar outflows in the HST/UV archive:* HST Proposal. Cycle 32, ID. #17864. Sept. 2024.

[16] Nahum Arav et al. *The largest BAL acceleration: testing disk wind models*. HST Proposal. Cycle 32, ID. #17816. July 2024.

[17] Doyee Byun, Nahum Arav, Maryam Dehghanian, Gwen Walker, and Gerard A. Kriss. "BAL outflow in quasar B0254-3327B: analysis and comparison with other extreme UV outflows". In: 529.4 (Apr. 2024), pp. 3550–3562. DOI: 10.1093/mnras/stae555. arXiv: 2310.03588 [astro-ph.GA].

[18] Doyee Byun, Nahum Arav, Mayank Sharma, Maryam Dehghanian, and Gwen Walker. "Extreme FeLoBAL outflow in the VLT/UVES spectrum of quasar SDSS J1321−0041". In: 684, A158 (Apr. 2024), A158. DOI: 10.1051/0004-6361/202348215. arXiv: 2310.06216 [astro-ph.GA].

[19] M. Dehghanian, N. Arav, D. Byun, G. Walker, and M. Sharma. "Narrow absorption line outflow in Seyfert 1 galaxy J1429+4518: outflow's distance from the central source and its energetics". In: 527.3 (Jan. 2024), pp. 7825–7834. DOI: 10.1093/mnras/stad3695. arXiv: 2311.16059 [astro-ph.GA].

[20] Maryam Dehghanian et al. "AGN STORM 2. VIII. Investigating the Narrow Absorption Lines in Mrk 817 Using HST-COS Observations". In: 972.2, 141 (Sept. 2024), p. 141. DOI: 10.3847/1538-4357/ad5ff4. arXiv: 2407.04164 [astro-ph.GA].

[21] Y. Homayouni et al. "AGN STORM 2. V. Anomalous Behavior of the C IV Light Curve of Mrk 817". In: 963.2, 123 (Mar. 2024), p. 123. DOI: 10.3847/1538-4357/ad1be4. arXiv: 2308.00742 [astro-ph.GA].

[22] Collin Lewin et al. "AGN STORM 2. VII. A Frequency-resolved Map of the Accretion Disk in Mrk 817: Simultaneous X-Ray Reverberation and UVOIR Disk Reprocessing Time Lags". In: 974.2, 271 (Oct. 2024), p. 271. DOI: 10.3847/1538-4357/ad6b08. arXiv: 2409.09115 [astro-ph.HE].

[23] Hagai Netzer et al. "AGN STORM 2. X. The Origin of the Interband Continuum Delays in Mrk 817". In: 976.1, 59 (Nov. 2024), p. 59. DOI: 10.3847/1538-4357/ad8160. arXiv: 2410.02652 [astro-ph.GA].

[24] Jack M. M. Neustadt et al. "AGN STORM 2. VI. Mapping Temperature Fluctuations in the Accretion Disk of Mrk 817". In: 961.2, 219 (Feb. 2024), p. 219. DOI: 10.3847/1538-4357/ad1386. arXiv: 2310.01497 [astro-ph.HE].

[25] Fatima Zaidouni et al. "AGN STORM 2. IX. Studying the Dynamics of the Ionized Obscurer in Mrk 817 with High-resolution X-Ray Spectroscopy". In: 974.1, 91 (Oct. 2024), p. 91. DOI: 10.3847/1538-4357/ad6771. arXiv: 2406.17061 [astro-ph.HE].

[26] Nahum Arav et al. *Quasar outflows in the HST/UV archive: Measuring major contributors to AGN feedback*. HST Proposal. Cycle 31, ID. #17556. Aug. 2023.

[27] Edward M. Cackett et al. "AGN STORM 2. IV. Swift X-Ray and Ultraviolet/Optical Monitoring of Mrk 817". In: 958.2, 195 (Dec. 2023), p. 195. DOI: 10.3847/1538-4357/acfdac. arXiv: 2306.17663 [astro-ph.HE].

[28] Y. Homayouni et al. "AGN STORM 2. II. Ultraviolet Observations of Mrk 817 with the Cosmic Origins Spectrograph on the Hubble Space Telescope". In: 948.2, 85 (May 2023), p. 85. DOI: 10.3847/1538-4357/acc45a. arXiv: 2302.11587 [astro-ph.GA].

[29] Gerard A. Kriss et al. *Evolution of the Obscuring Outflow in the Active Galaxy Mrk 817*. HST Proposal. Cycle 31, ID. #17463. Aug. 2023.

[30] Ethan R. Partington et al. "AGN STORM 2. III. A NICER View of the Variable X-Ray Obscurer in Mrk 817". In: 947.1, 2 (Apr. 2023), p. 2. DOI: 10.3847/1538-4357/acbf44. arXiv: 2302.12896 [astro-ph.HE].

[31] Gerard A. Kriss et al. *Monitoring the Evolving Winds in the Active Galaxy Mrk 817*. HST Proposal. Cycle 30, ID. #17105. June 2022.

[32] Daniel Kynoch, Hermine Landt, Maryam Dehghanian, Martin J. Ward, and Gary J. Ferland. "Multiple locations of near-infrared coronal lines in NGC 5548". In: 516.3 (Nov. 2022), pp. 4397–4416. DOI: 10.1093/mnras/stac2443. arXiv: 2208.12821 [astro-ph.GA].

[33] M. Dehghanian et al. "Space Telescope and Optical Reverberation Mapping Project. XIII. An Atlas of UV and X-Ray Spectroscopic Signatures of the Disk Wind in NGC 5548". In: 906.1, 14 (Jan. 2021), p. 14. DOI: 10.3847/1538-4357/abcb91. arXiv: 2011.09056 [astro-ph.GA].

[34] Maryam Dehghanian. "A multi-wavelength study of the disk winds and their role in the AGN studies". PhD thesis. University of Kentucky, Jan. 2021.

[35] Keith Horne et al. "Space Telescope and Optical Reverberation Mapping Project. IX. Velocity-Delay Maps for Broad Emission Lines in NGC 5548". In: 907.2, 76 (Feb. 2021), p. 76. DOI: 10.3847/1538-4357/abce60. arXiv: 2003.01448 [astro-ph.GA].

[36] Erin Kara et al. "AGN STORM 2. I. First results: A Change in the Weather of Mrk 817". In: 922.2, 151 (Dec. 2021), p. 151. DOI: 10.3847/1538-4357/ac2159. arXiv: 2105.05840 [astro-ph.HE].

[37] G. A. Kriss et al. *VizieR Online Data Catalog: Space telescope RM project. VIII. NGC5548 HST sp. (Kriss+, 2019)*. Jan. 2021. DOI: 10.26093/cds/vizier.18810153.

[38] M. Dehghanian et al. "HST insights into the missing piece of the AGN feedback puzzle: The role of disk winds". In: *American Astronomical Society Meeting Abstracts #235*. Vol. 235. American Astronomical Society Meeting Abstracts. Jan. 2020, 436.09, p. 436.09.

[39] M. Dehghanian et al. "Space Telescope and Optical Reverberation Mapping Project. XI. Disk-wind Characteristics and Contributions to the Very Broad Emission Lines of NGC 5548". In: 898.2, 141 (Aug. 2020), p. 141. DOI: 10.3847/1538-4357/ab9cb2. arXiv: 2006.06615 [astro-ph.GA].

[40] Bradley M. Peterson et al. *Mapping Gas Flows in AGNs by Reverberation*. HST Proposal. Cycle 28, ID. #16196. May 2020.

[41] P. A. M. van Hoof et al. "Current and future development of the photoionization code Cloudy". In: *Contributions of the Astronomical Observatory Skalnate Pleso* 50.1 (Jan. 2020), pp. 32–43. DOI: 10.31577/caosp.2020.50.1.32. arXiv: 2002.05821 [astro-ph.SR].

[42] P. R. Williams et al. "Space Telescope and Optical Reverberation Mapping Project. XII. Broad-line Region Modeling of NGC 5548". In: 902.1, 74 (Oct. 2020), p. 74. DOI: 10.3847/1538-4357/abbad7. arXiv: 2010.00594 [astro-ph.GA].

[43] M. Dehghanian et al. "A Wind-based Unification Model for NGC 5548: Spectral Holidays, Nondisk Emission, and Implications for Changing-look Quasars". In: 882.2, L30 (Sept. 2019), p. L30. DOI: 10.3847/2041-8213/ab3d41. arXiv: 1908.07686 [astro-ph.GA].

[44] M. Dehghanian et al. "Space Telescope and Optical Reverberation Mapping Project. X. Understanding the Absorption-line Holiday in NGC 5548". In: 877.2, 119 (June 2019), p. 119. DOI: 10.3847/1538-4357/ab1b48. arXiv: 1812.11578 [astro-ph.GA].

[45] Maryam Dehghanian et al. "Uncorrelated behavior of narrow absorption lines in NGC 5548". In: *American Astronomical Society Meeting Abstracts #233*. Vol. 233. American Astronomical Society Meeting Abstracts. Jan. 2019, 243.11, p. 243.11.

[46] F. Guzmán et al. "H-, He-like recombination spectra - III. n-changing collisions in highly excited Rydberg states and their impact on the radio, IR, and optical recombination lines". In: 486.1 (June 2019), pp. 1003–1018. DOI: 10.1093/mnras/stz857. arXiv: 1903.05730 [astro-ph.GA].

[47] Francisco Guzman Fulgencio et al. "The impact of inaccurate collisional excitation rates on radio recombination line observations". In: *American Astronomical Society Meeting Abstracts #233*. Vol. 233. American Astronomical Society Meeting Abstracts. Jan. 2019, 412.08, p. 412.08.

[48] G. A. Kriss et al. "Space Telescope and Optical Reverberation Mapping Project. VIII. Time Variability of Emission and Absorption in NGC 5548 Based on Modeling the Ultraviolet Spectrum". In: 881.2, 153 (Aug. 2019), p. 153. DOI: 10.3847/1538-4357/ab3049. arXiv: 1907.03874 [astro-ph.GA].

Conference Papers and Awarded Proposals

- The largest BAL acceleration: testing disk wind models, Arav, Nahum; Byun, Doyee; Dehghanian, Maryam and others, 2024
- Probing the Most Energetic Quasar Outflows using NIFS: PI: Dehghanian, M, 2023
- Monitoring the Evolving Winds in the Active Galaxy Mrk 817, Kriss, G.A., et al., 2022
- Mapping Gas Flows in AGNs by Reverberation, Peterson, B. M., et al., 2020
- HST insights into AGN feedback: Dehghanian, M. et al., 2020
- Multiple AAS presentations including poster and oral contributions

Talks

- Invited Talk: Space Telescope Science Institute, Nov 2025
- Invited Talk: Western Kentucky University, Oct 2025
- Invited talk: AtomDB WorkshopCenter for Astrophysics— Harvard & Smithsonian, Aug 2025
- Cloudy Workshop, Lexington, Aug 2025
- KAAS, Brea, KY, March 2025
- Invited Talk: University of Michigan, Dec 2024
- Cloudy Workshop, Japan, Aug 2024
- KAAS, Shawnee State University, OH, March 2024
- Invited Talk: Catholic University of America - Washington, DC, Dec 2023
- Invited talk: Department of Astronomy, Tsinghua University, China, Dec 2022
- Invited talk: Department of Physics and Astronomy, University of North Georgia, Oct 2022
- Invited talk: Dean's Development Council Meeting, The University of Kentucky, Dec 2021
- Award-winning talk: Postdoc Research & Career Symposium, University of Kentucky, Oct 2021
- Invited talk: University of Durham, United Kingdom, Sep 2021
- Invited talk: Los Alamos National Lab, New Mexico, July 2021
- Kentucky American Astronomical Society (KAAS), April 2021
- Invited talk: The Kentucky Academy of Science's Bench Talk Live series, March 2021
- Kentucky American Astronomical Society (KAAS), University of Louisville, March 2020
- American Astronomical Society (AAS), Honolulu, HI, Jan 2020
- Astrophysical Seminar, The University of Kentucky, Sep 2019
- Invited talk: STORM annual meeting, Space Telescope Science Institute, July 2019
- Invited talk: Astrophysical Seminar, Virginia Polytechnic Institute and State University, April 2019

- Kentucky American Astronomical Society (KAAS), Morehead State University, April 2019
- Invited talk: Astrophysical Seminar, The University of Kentucky, Jan 2019
- STORM annual meeting, Georgia State University, August 2017

Workshops

- Workshops on Accessibility in STEM, NSF, 2023
- Cloudy Workshop, University of Kentucky, 2023
- Leadership and Management in Action Program, UK, 2021
- Grant Writing Workshop, UK, 2021
- Chandra/CIAO Workshop, 2020
- Astrostatistics Summer School, Penn State, 2019
- AGN Spectral Analysis Bootcamp, 2018
- Python for Astrophysics Workshop, 2017

Professional Memberships

- Kentucky Area Astronomical Society, Education Officer, 2021–present
- American Astronomical Society, Junior Member, 2018–present
- American Physical Society, Junior Member, 2017–present

Teaching Certificates and Courses

- Seminar on Teaching Physics, UK, 2016
- Seminar on Teaching Physics Laboratories, UK, 2017
- Teacher Training Course (TTC), Iranmehr Institute, 2015
- Montessori Methods, Malaysia, 2014

Skills

Cloudy developer, HTML5/CSS, R scripting, Mathematica, Statistical analysis, CIAO, Python, IDL

Volunteer Work and outreach

- Mentoring REU students, 2025, Uky
- Cloudy Workshop, 2025, KY, USA
- Cloudy workshop organizer, 2024, JAXA, Japan
- KAAS Organizer, 2022,KY, USA
- Reviewer for MNRAS, ApJ and A&A
- AAS237 Chambliss Poster Judge, 2021
- Graduate Student Council Co-founder, UKy
- Cloudy worksghop organizer, 2019, KY, USA

Webinars and Seminars

- Practicing Inclusive Pedagogy, UK, 2021
- Inclusion Plan Best Practices Workshop

Awards and Honors

- First Award, Postdoc Research Career Symposium, UKy, 2021
- Keith B. MacAdam Graduate Excellence Fellowship, 2019
- Max Steckler Fellowship, University of Kentucky, 2017

Research Interests

AGN structure and evolution, Disk winds, Quasar outflows, Photoionization modeling, Reverberation mapping, Atomic physics, Supermassive black holes, Quantitative spectroscopy, Galaxy clusters, AGN feedback, Changing-look events, Warm absorbers