

CURRICULUM VITAE
Ashkbiz “Ash” Danehkar

Contact Information

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Personal Information

Citizenship Australian, US Permanent Resident

Research Interests

• Galaxy Formation and Evolution • AGN Feedback • Extreme Astrophysics • ISM Astrophysics

Employment

2022–present Research Scientist, Eureka Scientific Inc., Oakland, CA
2019–2021 Research Fellow, University of Michigan, Department of Astronomy, Ann Arbor, MI
2015–2018 Postdoctoral Fellow, Harvard–Smithsonian Center for Astrophysics, Cambridge, MA

Education

2014 PhD, Physics and Astronomy, Macquarie University, Sydney, Australia
2009 MS, Plasma Physics (with distinction), Queen’s University Belfast, UK

Grants and Funds

2022-2024 NASA Astrophysics Data Analysis Program (ADAP 80NSSC22K0626):
“Black Hole Spin Survey of Radio-quiet AGN” (21-ADAP21-0207; PI: Danehkar)
2021 NPSS Young Professionals Grant for ICOPS 2021 (\$300)
2014 Astronomical Society of Australia (ASA) Travel Award (\$1k)
2014 Australian Institute of Physics, Student Conference Support (\$500)
2013 Sigma Xi Grants-in-Aid of Research (GIAR; \$1.5k)
2012 Macquarie University Higher Degree Research Funds (\$8k)
2011, 2014 International Astronomical Union (IAU) Travel Grants (€2k, 1.5k)

Honors and Awards

2018 Symmetry Outstanding Reviewer Award (MDPI; 500 F)
2011 Max Planck Institute for Extraterrestrial Physics Travel Award (€1.5k)
2010–2014 Macquarie University Research Excellence Scholarship (\$136k)
2008–2009 Department for Employment and Learning Studentship (Northern Ireland; £25k)
2007–2008 Marie Curie Early Stage Researcher Scholarship (MRTN-CT-2004-005104; €16k)

Academic Service Activities

2022 Session Chair and Chambliss Award Judge, 240th AAS Meeting
2022 *Review Panelist* for NOIRLab Time Allocation Panel, Chandra Cycle 24 Peer Review
2021 Session Chair and Chambliss Award Judge, 237th AAS Meeting
2021 *Review Panelist* for NSF Astronomy & Astrophysics Research Grants (AAG)
2019, 2020 *Reviewer* for NASA Postdoctoral Program (NPP)
2017, 2019 *Review Panelist* for NASA’s Astrophysics Data Analysis Program (ADAP)
2011–present *Referee* for *ApJ*, *AJ*, *Ap&SS*, *Phys.Plasmas*, *JGR Sp.Phys.*, *MPLA*, *Universe*, etc.
85 verified reviews and 8 verified editor records in *Web of Science* (publons.com/a/843927)
2018–2021 *Guest Editor* for 2 Special Issues in *Universe* & *Front.Phys.*

Selected Conference Talks

2022 AAS Winter 240th Meeting, USA
2022 EAS Annual Meeting, Valencia, Spain
2021 IAUS 362: Predictive Power of Computational Astrophysics (Virtual)
2021 Asymmetrical Post-Main-Sequence Nebulae 8 (Virtual)
2021 Challenges and Innovations in Computational Astrophysics-III, Virtual Meeting
2021 APS April Meeting (Virtual), USA
2021 AAS Winter 237th Virtual Meeting, USA
2020 30th Midwest Relativity Meeting, University of Notre Dame, IN, Virtual Meeting
2017 New England Regional Quasar and AGN Meeting, Boston University, MA

Teaching and Mentoring Experience

2021	Higher Education Teaching Certificate, Harvard University, Derek Bok Center
2020	Inclusive STEM Teaching Project, University of Michigan, CRLT
2020	College STEM Teaching Certificate (Postdoc Short Course), University of Michigan, CRLT
2019–2020	Mentoring, one UROP program undergraduate student
2019–2020	Mentoring, two undergraduate students supervised by Prof. Sally Oey
2018	Teaching Assistant, Massachusetts Institute of Technology, Department of Physics: Provided assistants in the course “ Holographic Duality ” (PHY 8.871; taught by Prof. Hong Liu)
2015	Learning Management System Specialist, Laureate International Universities, Sydney, Australia: Responsible for building and developing massive open online courses (MOOC) for students
2010–2012	Teaching Assistant, Macquarie University, Department of Physics and Astronomy

Computing Time

2016	(PI) NSF XSEDE (STAMPEDE , 20 kSU)
2014	(PI) NCI National Facility, gSTAR/swinSTAR (project p063_astro; 250 kSU)
2012	(Co-I) NCI National Facility, raijin/vayu (project g33; 350 kSU)
2011	(Co-I) NCI National Facility, orange (project g33; 200 kSU)

Telescope Time

Ground-based Observatories

03/2018	(Co-I) NRAO VLA (5.0 hours), Proposal ID VLA/18A-271 “Dynamic Evolution of the Powerful Jet Activity in the Symbiotic System R Aqr”
A/2013	(PI) Gemini South 8.1-m Telescope (Queue 8 hrs on Band 3), GMOS Proposal GS-2013A-Q-88 “Kinematic and ionization study of planetary nebulae with close-binary nuclei”
07/2013	(Co-I) AAT 3.9-m Telescope (3.9 hours), AAO-SPIRAL Service Proposal ID SP019 “Kinematical study of Galactic planetary nebulae with binary central stars”
B/2012	(PI) Gemini South 8.1-m Telescope (Queue 5.2 hrs on Band 3), GMOS Proposal GS-2012B-Q-69 “Kinematic study of planetary nebulae with potential double-degenerate nuclei”
08/2012	(PI) ANU 2.3-m Telescope (Classical 4 nights), WiFeS, Proposal ID 3-12-0158 “Morpho-kinematics and abundances analysis of Galactic planetary nebulae”
02/2012	(PI) ANU 2.3-m Telescope (Classical 4 nights), WiFeS, Proposal ID 1-12-0214 “Kinematic study of planetary nebulae with potential double-degenerate nuclei”

Professional Memberships

2020–present	International Astrostatistics Association (IAA), Member
2020–present	International Society on General Relativity and Gravitation (ISGRG), Member
2018–present	International Astronomical Union (IAU), Member
2017–present	American Physical Society (APS), Member
2016–present	<i>Lynx</i> Science Working Groups (Physics of Feedback, Evolution of Structure), Member
2015–present	American Astronomical Society (AAS), Full Member
2011–2019	Astronomical Society of Australia (ASA), Member
2011–2019	Australian National Institute for Theoretical Astrophysics (ANITA), Member
2010–2018	Sigma Xi Scientific Research Honor Society, Full Member

Computing and Observing Experience

Computing:	Professional programming with C, C++, Python, FORTRAN, Pascal, MATLAB/Octave Extensive programming with AstroPy, IDL/GDL, ISIS/S-Lang, CIAO/Sherpa, Mathematica Parallel computing with OpenMPI, MPICH, Intel MPI
Hydrodynamics:	Programming for building framework models in FLASH , Enzo , Kinematic modeling with SHAPE
Data Science:	Data analysis programming with SciPy, pandas, NumPy, Matplotlib, h5py, yt Machine learning programming with TensorFlow, Keras, PyTorch, scikit-learn
Data Reduction:	Extensive experience with IRAF/PyRAF, HEASoft, XMMSAS, <i>HST</i> DrizzlePac, CIAO, Starlink
Observing:	ANU 2.3m telescope, Siding Spring Observatory, Coonabarabran, Australia

Editorial Service

2020–2021	Universe: Special Issue “Frame-Dragging and Gravitomagnetism”
2018–2019	Frontiers in Physics: Research Topic: “Electric-Magnetic Duality in Gravitational Theories”

Professional Development

2021	Higher Education Teaching Certificate, Harvard University (Derek Bok Center)
2020	Applied Data Science with Python, Specialization Certificate , University of Michigan
2020	Professional Development DEI Certificate , University of Michigan (Rackham School)

Publications in Refereed Journals

Refereed Total Papers:	29 (+ 1 submitted)
Refereed First Author Papers:	24 (+ 1 submitted)
Refereed 2nd & 3rd Author Papers:	4
Other Refereed Works:	<i>JOSS</i> Software Papers (4), Book Reviews (2)
Non-Refereed Papers:	Proceedings (15), Abstracts (13), White Paper (1)
Presentations:	Conference Talks (19), Colloquium Talks (15), Posters (22)
<i>h</i> -index:	11 (Web of Science), 11 (Scopus), 13 (Google Scholar), 12 (ADS)
List of Publications:	All records on ADS (orcid:0000-0003-4552-5997)

- [30] 2022. [Daneshkar, A., Oey, M. S., and Gray, W. J. Catastrophic Cooling in Superwinds. III. Non-equilibrium Photoionization, *ApJ*, submitted.](#)
- [29] 2022. [Daneshkar, A., and Parthasarathy, M. Physical Conditions and Chemical Abundances of the Variable Planetary Nebula IC 4997, *MNRAS*, 514, 1217–1230. doi:10.1093/mnras/stac1364 arXiv:2205.14250 \[astro-ph.SR\]](#)
- [28] 2022. [Daneshkar, A. Covariant Evolution of Gravitoelectromagnetism, *Universe*, 8, 318. doi:10.3390/universe8060318 arXiv:2206.13946 \[gr-qc\]](#)
- [27] 2022. [Daneshkar, A. Morpho-kinematic Properties of Wolf-Rayet Planetary Nebulae, *ApJS*, 260, 14. doi:10.3847/1538-4365/ac5cca arXiv:2107.03994 \[astro-ph.SR\]](#)
Interactive 3D Sketchfab:skfb.ly/opFZv
- [26] 2022. [Daneshkar, A. Morphologies of Wolf-Rayet Planetary Nebulae based on IFU Observations, *Galaxies*, 10, 45. doi:10.3390/galaxies10020045 arXiv:2203.03354 \[astro-ph.SR\]](#)
- [25] 2022. [Daneshkar, A. 3D spatio-kinematic modeling of Abell 48, a planetary nebula around a Wolf-Rayet \[WN\] star, *MNRAS*, 511, 1022–1028. doi:10.1093/mnras/stab3735 arXiv:2112.12043 \[astro-ph.SR\]](#)
Interactive 3D Sketchfab:skfb.ly/o7nxA
- [24] 2021. [Daneshkar, A. Physical and Chemical Properties of Wolf-Rayet Planetary Nebulae, *ApJS*, 257, 58. doi:10.3847/1538-4365/ac2310 arXiv:2106.10762 \[astro-ph.SR\]](#)
VizieR Online Data Catalog:J/ApJS/257/58
- [23] 2021. [Daneshkar, A., Oey, M. S., and Gray, W. J. Catastrophic Cooling in Superwinds. II. Exploring the Parameter Space, *ApJ*, 921, 91. doi:10.3847/1538-4357/ac1a76 arXiv:2106.10854 \[astro-ph.GA\]](#)
VizieR Online Data Catalog:J/ApJ/921/91 Interactive Figures:superwinds.astro.lsa.umich.edu
- [22] 2021. [Daneshkar, A., Alshal, H., and Curtright, T. L. Dual fields of massive/massless gravitons in IR/UV completions, *Int. J. Mod. Phys. D*, 30, 2142021. doi:10.1142/S0218271821420219 arXiv:2109.05148 \[hep-th\]](#)
- [21] 2021. [Daneshkar, A., Karovska, M., Drake, J. J., and Kashyap, V. L. Long-term X-ray variability of the symbiotic system RT Cr based on *Chandra* spectroscopy, *MNRAS*, 500, 4801–4817. doi:10.1093/mnras/staa3554 arXiv:2011.07390 \[astro-ph.HE\]](#)
- [20] 2020. [Daneshkar, A. Gravitational fields of the magnetic-type, *Int. J. Mod. Phys. D*, 29, 2043001. doi:10.1142/S0218271820430014 arXiv:2006.13287 \[gr-qc\]](#)
- [19] 2019. [Boissay-Malaquin, R., Daneshkar, A., Marshall, H. L., Nowak, M. A. Relativistic Components of the Ultra-fast Outflow in the Quasar PDS 456 from *Chandra*/HETGS, *NuSTAR*, and *XMM-Newton* Observations, *ApJ*, 873, 29. doi:10.3847/1538-4357/ab0082 arXiv:1901.06641 \[astro-ph.HE\]](#)
- [18] 2019. [Daneshkar, A. Electric-magnetic duality in gravity and higher-spin fields, *Front. Phys.*, 6, 146. doi:10.3389/fphy.2018.00146](#)
- [17] 2018. [Kriss, G. A., Lee, J. C., and Daneshkar, A. A Search for H I Ly \$\alpha\$ Counterparts to Ultra-fast X-ray Outflows, *ApJ*, 859, 94. doi:10.3847/1538-4357/aabf38 arXiv:1804.05652 \[astro-ph.GA\]](#)
- [16] 2018. [Kriss, G. A., Lee, J. C., Daneshkar, A., Nowak, M. A., Fang, T., Hardcastle, M. J., Neilsen, J., and Young, A. J. Discovery of an Ultraviolet Counterpart to an Ultra-fast X-ray Outflow in the Quasar PG 1211+143, *ApJ*, 853, 166. doi:10.3847/1538-4357/aaa42b arXiv:1712.08850 \[astro-ph.HE\]](#)
- [15] 2018. [Daneshkar, A., Nowak, M. A., Lee, J. C., Kriss, G. A., Young, A. J., Hardcastle, M. J., Chakravorty, S., Fang, T., Neilsen, J., Rahoui, F., and Smith, R. K. The Ultra-fast Outflow of the Quasar PG 1211+143 as Viewed by Time-averaged *Chandra* Grating Spectroscopy, *ApJ*, 853, 165. doi:10.3847/1538-4357/aaa427 arXiv:1712.07118 \[astro-ph.HE\]](#)
- [14] 2018. [Daneshkar, A., Nowak, M. A., Lee, J. C., and Smith, R. K. MPLXSTAR: MPI-based parallelization of the XSTAR photoionization program, *PASP*, 130, 024501. doi:10.1088/1538-3873/aa9dff arXiv:1712.00343 \[astro-ph.HE\]](#)
- [13] 2018. [Daneshkar, A., Karovska, M., Maksym, W. P., and Montez Jr, R. Mapping Excitation in the Inner Regions of the Planetary Nebula NGC 5189 Using *HST* WFC3 Imaging, *ApJ*, 852, 87. doi:10.3847/1538-4357/aa9e8c arXiv:1711.11111 \[astro-ph.SR\]](#)

- [12] 2018. [Danekhar, A.](#) Electron beam-plasma interaction and electron-acoustic solitary waves in a plasma with suprathermal electrons, *Plasma Phys. Control. Fusion*, **60**, 065010. doi:10.1088/1361-6587/aabc40 arXiv:1804.07299 [physics.plasm-ph]
- [11] 2018. [Danekhar, A.](#) Bi-Abundance Ionisation Structure of the Wolf-Rayet Planetary Nebula PB 8, *PASA*, **35**, e005. doi:10.1017/pasa.2018.1 arXiv:1801.00892 [astro-ph.SR]
- [10] 2017. [Danekhar, A.](#) Electrostatic solitary waves in an electron-positron pair plasma with suprathermal electrons, *Phys. Plasmas*, **24**, 102905. doi:10.1063/1.5000873 arXiv:1711.01141 [physics.plasm-ph]
- [9] 2016. [Danekhar, A.](#), [Parker, Q. A.](#) and [Steffen, W.](#) Fast, low-ionization emission regions of the planetary nebula M2-42, *AJ*, **151**, 38. doi:10.3847/0004-6256/151/2/38 arXiv:1601.01702 [astro-ph.SR]
- [8] 2015. [Danekhar, A.](#) Discovery of collimated bipolar outflows in the planetary nebula Th 2-A, *ApJ*, **815**, 35. doi:10.1088/0004-637X/815/1/35 arXiv:1512.02330 [astro-ph.SR]
- [7] 2015. [Danekhar, A.](#), and [Parker, Q. A.](#) Spatially resolved kinematic observations of the planetary nebulae Hen 3-1333 and Hen 2-113, *MNRAS:Letters*, **449**, L56–L59. doi:10.1093/mnrasl/slv022 arXiv:1503.01551 [astro-ph.SR]
- [6] 2014. [Frew, D. J.](#), [Bojicic, I. S.](#), [Parker, Q. A.](#), [Stupar, M.](#), [Wachter, S.](#), [DePew, K.](#), [Danekhar, A.](#), [Fitzgerald, M. T.](#), and [Douchin, D.](#) The planetary nebula Abell 48 and its [WN] nucleus, *MNRAS*, **440**, 1345–1364. doi:10.1093/mnras/stu198 arXiv:1301.3994 [astro-ph.SR]
- [5] 2014. [Danekhar, A.](#), [Todt, H.](#), [Ercolano, B.](#), and [Kniazev, A. Y.](#) Observations and three-dimensional photoionization modelling of the Wolf-Rayet planetary nebula Abell 48, *MNRAS*, **439**, 3605–3615. doi:10.1093/mnras/stu203 arXiv:1403.0567 [astro-ph.SR]
- [4] 2013. [Danekhar, A.](#), [Parker, Q. A.](#), and [Ercolano, B.](#) Observations and three-dimensional ionization structure of the planetary nebula SuWt 2, *MNRAS*, **434**, 1513–1530. doi:10.1093/mnras/stt1116 arXiv:1307.2974 [astro-ph.SR]
- [3] 2011. [Danekhar, A.](#), [Saini, N. S.](#), [Hellberg, M. A.](#), and [Kourakis, I.](#) Electron-acoustic solitary waves in the presence of a suprathermal electron component, *Phys. Plasmas*, **18**, 072902. doi:10.1063/1.3606365 arXiv:1107.5226 [astro-ph.SR]
- [2] 2009. [Danekhar, A.](#) On the significance of the Weyl curvature in a relativistic cosmological model, *Mod. Phys. Lett. A*, **24**, 3113–3127. doi:10.1142/S0217732309032046 arXiv:0707.2987 [gr-qc]
- [1] 2009. [Bizdadea, C.](#), [Cioroianu, E. M.](#), [Danekhar, A.](#), [Iordache, M.](#), [Saliu, S. O.](#), and [Sararu, S. C.](#) Consistent interactions of dual linearized gravity in $D = 5$: couplings with a topological BF model, *Eur. Phys. J. C*, **63**, 491–519. doi:10.1140/epjc/s10052-009-1105-0 arXiv:0908.2169 [hep-th]

Scientific Codes (Refereed)

- [4] 2020. [Danekhar, A.](#) AtomNeb Python Package, an addendum to AtomNeb: IDL Library for Atomic Data of Ionized Nebulae, *J. Open Source Softw.*, **5**, 2797. doi:10.21105/joss.02797
- [3] 2020. [Danekhar, A.](#) pyEQUIB Python Package, an addendum to proEQUIB: IDL Library for Plasma Diagnostics and Abundance Analysis, *J. Open Source Softw.*, **5**, 2798. doi:10.21105/joss.02798
- [2] 2019. [Danekhar, A.](#) AtomNeb: IDL Library for Atomic Data of Ionized Nebulae, *J. Open Source Softw.*, **4**, 898. doi:10.21105/joss.00898 arXiv:1907.02528 [astro-ph.IM]
- [1] 2018. [Danekhar, A.](#) proEQUIB: IDL Library for Plasma Diagnostics and Abundance Analysis, *J. Open Source Softw.*, **3**, 899. doi:10.21105/joss.00899 arXiv:1812.01605 [astro-ph.IM]

Book Reviews (Refereed)

- [2] 2019. [Danekhar, A.](#) Book Review: Holographic Entanglement Entropy, *Front. Phys.*, **7**, 121. doi:10.3389/fphy.2019.00121
- [1] 2018. [Danekhar, A.](#) Book Review: Gauge/Gravity Duality: Foundations and Applications, *Front. Phys.*, **6**, 82. doi:10.3389/fphy.2018.00082

Conference Proceedings

- [15] 2022. [Danekhar, A.](#), [Oey, M. S.](#), and [Gray, W. J.](#) Hydrodynamic Simulations and Time-dependent Photoionization Modeling of Starburst-driven Superwinds, In: *Proceedings of the IAU Symposium 362: Predictive Power of Computational Astrophysics*, *IAU Symp.*, 362 doi:10.1017/S1743921322001570
- [14] 2022. [Danekhar, A.](#) Silicon K-edge Dust Properties of Neutron Star Low-mass X-ray Binaries, In: *Proceedings of the IAU Symposium 363: Neutron Star Astrophysics at the Crossroads*, *IAU Symp.*, 363 doi:10.1017/S174392132200045X

- [13] 2021. [Daneshkar, A., Oey, M. S., and Gray, W. J.](#) Non-equilibrium Photoionization and Hydrodynamic Simulations of Starburst-driven Outflows. *J. Phys.: Conf. Ser.*, 2028, 012013. doi:10.1088/1742-6596/2028/1/012013
- [12] 2021. [Daneshkar, A., Oey, M. S., and Gray, W. J.](#) Conditions for Superwind Classes of Super Star Clusters. In: *Focus on AAS 237, Res. Notes AAS*, 5, 82. doi:10.3847/2515-5172/abf4b7
- [11] 2016. [Daneshkar, A., and Parker, Q. A.](#) Orientation of Galactic Bulge Planetary Nebulae toward the Galactic Center, In: *Proceedings of the IAU Symposium 312: Star Clusters and Black Holes in Galaxies across Cosmic Time, IAU Symp.*, 312, 128–130. doi:10.1017/S1743921315007681
- [10] 2015. [Daneshkar, A., Steffen, W., and Parker, Q. A.](#) Kinematical Properties of Planetary Nebulae with WR-type Nuclei, In: *Proceedings of the 12th Asia-Pacific Regional IAU Meeting, Publ.Korean Astron.Soc.*, 30, 163–167. doi:10.5303/PKAS.2015.30.2.163
- [9] 2015. [Daneshkar, A., Wesson, R., Karakas, A. I. and Parker, Q. A.](#) Physical and Chemical Properties of Planetary Nebulae with WR-type Nuclei, In: *Proceedings of the 12th Asia-Pacific Regional IAU Meeting (APRIM), Publ.Korean Astron.Soc.*, 30, 159–161. doi:10.5303/PKAS.2015.30.2.159
- [8] 2014. [Daneshkar, A., Kourakis, I. and Hellberg, M. A.](#) Electron-acoustic solitons in an electron-beam plasma system with kappa-distributed electrons, In: *Plasma Sciences (ICOPS), IEEE 41st International Conference on High-Power Particle Beams (BEAMS)*, Id. 7012747. doi:10.1109/PLASMA.2014.7012747
- [7] 2013. [Daneshkar, A., Frew, D. J., De Marco, O., and Parker, Q. A.](#) A search for Type Ia supernova progenitors: the central stars of the planetary nebulae NGC 2392 and NGC 6026. In: *Proceedings of the IAU Symposium 281: Binary Paths to the Explosions of type Ia Supernovae, IAU Symp.*, 281, 221–222. doi:10.1017/S1743921312015074
- [6] 2012. [Daneshkar, A., Frew, D. J., Parker, Q. A., and De Marco, O.](#) Photoionization models of the Eskimo nebula: evidence for a binary central star?, In: *Proceedings of the IAU Symposium 282: From Interacting Binaries to Exoplanets, Essential Modeling Tools, IAU Symp.*, 282, 470–471. doi:10.1017/S1743921311028134
- [5] 2012. [Daneshkar, A., Frew, D. J., De Marco, O., and Parker, Q. A.](#) Photoionization modeling of the Galactic planetary nebulae Abell 39 and NGC 7027. In: *Proceedings of the IAU Symposium 283: Planetary Nebulae: an Eye to the Future, IAU Symp.*, 283, 340–341. doi:10.1017/S1743921312011325
- [4] 2011. [Saini, N. S., Daneshkar, A., Hellberg, M. A., and Kourakis, I.](#) 2011. Large-amplitude electron-acoustic solitons in a dusty plasma with kappa-distributed electrons. In: *Proceedings of the Sixth International Conference on the Physics of Dusty Plasmas, AIP Conf.Proc.*, 1397, 357–358. doi:10.1063/1.365984
- [3] 2011. [Daneshkar, A., Saini, N. S., Hellberg, M. A., and Kourakis, I.](#) Electron beam–plasma interaction in a dusty plasma with excess suprathermal electrons. In: *Proceedings of the Sixth International Conference on the Physics of Dusty Plasmas, AIP Conf.Proc.*, 1397, 305–306. doi:10.1063/1.3659815
- [2] 2010. [Sultana, S., Daneshkar, A., Saini, N. S., Hellberg, M. A., and Kourakis, I.](#) Effect of superthermality on nonlinear electrostatic modes in plasmas. In: *Proceedings of the 37th European Physical Society Conference on Plasma Physics, EPS Conference Proceedings*, 34A, P2.410, 2010. ADS doi:10.6084/m9.figshare.4774570
- [1] 2009. [Bizdadea, C., Cioroianu, E. M., Daneshkar, A., Iordache, M., Saliu, S. O., and Sararu, S. C.](#) BF Models in Dual Formulations of Linearized Gravity, In: *Proceedings of the Physics Conference TIM-08, AIP Conf.Proc.*, 1131, 29–35. doi:10.1063/1.3153449

Meeting Abstracts

- [13] 2022. [Daneshkar, A.](#) Chemical abundances of Planetary Nebulae around Hydrogen-deficient Stars. In: *EAS Meeting 2022, European Astronomical Society Annual Meeting*, SS16, 1270. ADS
- [12] 2022. [Daneshkar, A.](#) Probing Supermassive Black Hole Spins through Reflection Modeling of Accretion Disks. In: *EAS Meeting 2022, European Astronomical Society Annual Meeting*, SS12, 1264. ADS
- [11] 2022. [Daneshkar, A.](#) Hydrodynamic Simulations of Large-scale AGN-driven Outflows. In: *EAS Meeting 2022, European Astronomical Society Annual Meeting*, S6, 1258. ADS
- [10] 2022. [Daneshkar, A.](#) Bayesian X-ray Spectral Analysis of Black Hole Spins in Seyfert I AGN. In: *AAS Meeting 240, Bulletin of the American Astronomical Society*, 54, 230.02. ADS
- [9] 2022. [Daneshkar, A.](#) Black hole spins in radio-quiet type I active galaxies: Markov chain Monte Carlo based analysis. In: *APS April Meeting, Bulletin of the American Physical Society*, S17.00045. ADS APS
- [8] 2021. [Daneshkar, A.](#) Positron-acoustic solitons in an electron-positron plasma with beam electrons and kappa-distributed electrons. In: *APS Division of Plasma Physics Meeting, Bulletin of the American Physical Society*, JP11.00003. ADS APS doi:10.6084/m9.figshare.17125547
- [7] 2021. [Daneshkar, A.](#) Electron Beam-Plasma Interaction in an Electron-Positron Plasma System with Kappa-Distributed Electrons, In: *Plasma Sciences (ICOPS), 48th IEEE International Conference on*, Id. 9588478. ADS doi:10.1109/ICOPS36761.2021.9588478

- [6] 2021. Boissay-Malaquin, R., Danehkar, A., Marshall, H., and Nowak, M. Chandra/HETG and NuSTAR Observations of the Quasar PDS 456 and its Ultra-fast Outflow Components. In: *AAS Meeting 238, Bulletin of American Astronomical Society*, 53, 224.02. [ADS](#)
- [5] 2021. Danehkar, A. Hard X-ray emitting symbiotics: candidates for type Ia supernova progenitors. In: *APS April Meeting, Bulletin of the American Physical Society*, Z09.00006. [ADS](#) [APS doi:10.6084/m9.figshare.14669499](#)
- [4] 2021. Danehkar, A., Oey, M. S., and Gray, W. J. Emission Lines from Superwinds of Super Star Clusters. In: *AAS Meeting 237, Bulletin of the American Astronomical Society*, 53, 228.04. [ADS](#) [doi:10.6084/m9.figshare.13720114](#)
- [3] 2019. Boissay-Malaquin, R., Danehkar, A., Marshall, H., and Nowak, M. The extreme velocities of the Ultra-fast Outflow components in the Quasar PDS 456. In: *American Astronomical Society, HEAD Meeting*, 17, 301.03. [ADS](#)
- [2] 2018. Danehkar, A., Karovska, M., Maksym, W. P., and Montez, R. Discovery of Low-ionization Envelopes in the Planetary Nebula NGC 5189: Spatially-resolved Diagnostics from HST Observations. In: *American Astronomical Society Meeting*, 231, 241.12. [ADS](#) [doi:10.6084/m9.figshare.5838564](#)
- [1] 2017. Nowak, M., Danehkar, A., Kriss, G. A., Lee, J. C., Smith, R. K., and Neilsen, J. *The Ultra-fast Outflows of PG 1211+143*, In: *American Astronomical Society, HEAD Meeting* 16, 200.03. [ADS](#)

Conference Talks

- [19] 2022. Time-dependent Numerical Modeling of Thermally Driven Stellar Winds, IAU Symposium 370: Winds of Stars and Exoplanets, Busan, Korea, August 8.
- [18] 2022. Conditions for Cool Superwinds in Massive Star-forming Regions, IAU Symposium 373: Resolving the Rise and Fall of Star Formation in Galaxies (e-Talk), Busan, Korea, August 4.
- [17] 2022. Hydrodynamic Simulations of Large-scale AGN-driven Outflows, European Astronomical Society Annual Meeting (remotely), Valencia, Spain, June 27.
- [16] 2022. Bayesian X-ray Spectral Analysis of Black Hole Spins in Seyfert I AGN, AAS Summer 240th Meeting, Pasadena, USA, June 14.
- [15] 2021. Chemical Compositions of [WR] Planetary Nebulae based on IFU Observations, Evolved Stars and their Circumstellar Environments (Online Workshop), December 15. [YouTube](#) [doi:10.6084/m9.figshare.17700830](#)
- [14] 2021. Hydrodynamic Simulations and Time-dependent Photoionization Modeling of Starburst-driven Superwinds, IAU Symposium 362: Predictive Power of Computational Astrophysics (Virtual), November 8. [YouTube](#) [doi:10.6084/m9.figshare.17125607](#)
- [13] 2021. IFU Observations of Collimated Bipolar Outflows in Wolf-Rayet Planetary Nebulae, IAU Symposium 366: Outflows in Evolved Stars (Virtual; pre-recorded pitch talk), November 1–5. [doi:10.5281/zenodo.5759112](#)
- [12] 2021. Non-equilibrium Photoionization and Hydrodynamic Simulations of Starburst-driven Outflows, 4th Workshop on Numerical Modeling in MHD and Plasma Physics (Virtual), October 13. [doi:10.6084/m9.figshare.16820926](#)
- [11] 2021. Morphologies of Wolf-Rayet Planetary Nebulae based on IFU Observations, Asymmetrical Post-Main-Sequence Nebulae 8 (APN8): the Shaping of Stellar Outflows, October 8. [YouTube](#) [doi:10.6084/m9.figshare.16850317](#)
- [10] 2021. Bayesian X-ray Spectral Analysis of the Symbiotic Star RT Cru, Chandra Data Science: Novel Methods in Computing and Statistics for X-ray Astronomy (Virtual), August 18. [YouTube](#) [doi:10.6084/m9.figshare.15241914](#)
- [9] 2021. Hydrodynamic Simulations of Starburst-driven Superwinds, Challenges and Innovations in Computational Astrophysics - III (ChaICA-III; Virtual), June 21. [YouTube](#) [doi:10.6084/m9.figshare.14820438](#)
- [8] 2021. Parametric Investigation of Superwinds via Hydrodynamic Simulations, ISM 2021: Structure, Characteristic Scales, and Star Formation, Beirut (Virtual), May 11.
- [7] 2021. Hard X-ray emitting symbiotics: candidates for type Ia supernova progenitors, APS April Meeting (Virtual), USA, April 20. [APS](#) [doi:10.6084/m9.figshare.14669499](#)
- [6] 2021. Emission Lines from Superwinds of Super Star Clusters, AAS Winter 237th Virtual Meeting, USA, January 12. [YouTube](#) [doi:10.6084/m9.figshare.13720114](#)
- [5] 2020. Paths to a Unified AGN Outflow Model via Computational Relativity, Challenges and Innovations in Computational Astrophysics - II (ChaICA-II; Virtual), November 20. [doi:10.6084/m9.figshare.13699591](#)
- [4] 2020. Tendex and Vortex Lines around Spinning Supermassive Black Holes, 30th Midwest Relativity Meeting (Virtual), University of Notre Dame, IN, USA, October 23. [doi:10.6084/m9.figshare.13699531](#)
- [3] 2019. Active Galactic Nuclei: Laboratory for Gravitational Physics, 29th Midwest Relativity Meeting, Grand

Valley State University, Grand Rapids, MI, USA, October 4. doi:[10.6084/m9.figshare.13699240](https://doi.org/10.6084/m9.figshare.13699240)

- [2] 2017. Chandra Grating Spectroscopy of PG 1211+143: Evidence for an Ultra-fast Outflow, New England Regional Quasar and AGN Meeting, Boston University, MA, USA, May 12. doi:[10.6084/m9.figshare.13699078](https://doi.org/10.6084/m9.figshare.13699078)
- [1] 2014. Kinematic Properties of Planetary Nebulae with Wolf-Rayet Stars, 12th Asia-Pacific Regional IAU Meeting, Daejeon, Korea, August 20. doi:[10.6084/m9.figshare.13698868](https://doi.org/10.6084/m9.figshare.13698868)

Colloquium and Invited Talks

- [15] 2019. Simulations of Superwind Suppression in Super Star Clusters, Galaxy Group Meeting, University of Michigan, Ann Arbor, MI, USA, November 25. doi:[10.6084/m9.figshare.13699429](https://doi.org/10.6084/m9.figshare.13699429)
- [14] 2019. Relativistic Compact Outflows in Radio-quiet AGN, Extreme Astrophysics Group, University of Michigan, Ann Arbor, MI, USA, October 31. doi:[10.6084/m9.figshare.13699300](https://doi.org/10.6084/m9.figshare.13699300)
- [13] 2019. Suppressed Superwinds in Super Star Clusters via Hydrodynamic Simulations, Post-Doc Colloquium, University of Michigan, Ann Arbor, MI, USA, September 5. doi:[10.6084/m9.figshare.13699186](https://doi.org/10.6084/m9.figshare.13699186)
- [12] 2019. Ultra-Fast Outflows in Seyfert I AGN, Galaxy Group Meeting, University of Michigan, Ann Arbor, MI, USA, March 11. doi:[10.6084/m9.figshare.13699114](https://doi.org/10.6084/m9.figshare.13699114)
- [11] 2018. Deep Chandra Observations of PG 1211+143: Detection of an Ultra-Fast Outflow, CfA Quasar Tea, Harvard CfA, Cambridge, MA, USA, March 23.
- [10] 2017. Low-ionization Envelopes in NGC 5189: Spatially-resolved HST Observations, CfA Postdoc Symposium, Harvard CfA, Cambridge, MA, USA, October 20. doi:[10.6084/m9.figshare.13699090](https://doi.org/10.6084/m9.figshare.13699090)
- [9] 2016. Photoionization Modeling of Warm Absorbing Outflows in Active Galactic Nuclei, CfA Postdoc Symposium, Harvard CfA, Cambridge, MA, USA, October 7. doi:[10.6084/m9.figshare.13699069](https://doi.org/10.6084/m9.figshare.13699069)
- [8] 2016. Ultra-fast Outflows from Active Galactic Nuclei of Seyfert I Galaxies, High Energy Phenomena Seminar (lunch talk), Harvard CfA, Cambridge, MA, USA, September 7. doi:[10.6084/m9.figshare.13699048](https://doi.org/10.6084/m9.figshare.13699048) [YouTube](#)
- [7] 2015. Collimated Bipolar Outflows in Planetary Nebulae from Integral Field Spectroscopy, HEA Group Meeting, MIT Kavli Institute, Cambridge, MA, USA, December 3.
- [6] 2015. Insights into the Morphology of Planetary Nebulae from 3D Spectroscopy, CfA Postdoc Symposium, Harvard CfA, Cambridge, MA, USA, November 20. doi:[10.6084/m9.figshare.13699018](https://doi.org/10.6084/m9.figshare.13699018)
- [5] 2016. Photoionization Modeling of Warm Absorbing Outflows in Active Galactic Nuclei, CfA Postdoc Symposium, Harvard CfA, Cambridge, MA, USA, October 7. doi:[10.6084/m9.figshare.13699069](https://doi.org/10.6084/m9.figshare.13699069)
- [4] 2011. Photoionization Models of the Eskimo Nebula: Evidence for a Hidden Ionizing Source, MQ AAstro Workshop, Macquarie University, Sydney, NSW, Australia, December 6.
- [3] 2011. Electron Beam-Plasma Interaction in Suprathermal Plasmas, MQ Astroseminar (seminar talk), Macquarie University, Sydney, NSW, Australia, May 12.
- [2] 2009. Electrostatic solitary waves in a plasma with suprathermal electrons, Annual IMPRS-APS Meeting, Garching, Germany, November 27.
- [1] 2009. Propagation of electron-acoustic excitations in the presence of suprathermal background electrons, CPP Project Seminar, Queen's University Belfast, UK, September 30. doi:[10.6084/m9.figshare.13698991](https://doi.org/10.6084/m9.figshare.13698991)

Conference Posters

- [22] 2022. Black Hole Spins from Relativistic Reflection Modeling of Accretion Disks in Radio-quiet AGN, General Assembly IAU Focus Meeting 1, Busan, Korea, August 8–11.
- [21] 2022. UV Diagnostics of Radiatively Cooling Superwinds in Super Star Clusters, General Assembly IAU Focus Meeting 2, Busan, Korea, August 8–11.
- [20] 2022. Measuring Black Hole Spins in Radio-quiet type I AGN, 23rd International Conference on General Relativity and Gravitation (Virtual), July 3–8.
- [19] 2022. Probing Supermassive Black Hole Spins through Reflection Modeling of Accretion Disks, European Astronomical Society Annual Meeting, Valencia, Spain, June 27– July 1.
- [18] 2022. Chemical abundances of Planetary Nebulae around Hydrogen-deficient Stars, European Astronomical Society Annual Meeting, Valencia, Spain, June 27– July 1.
- [17] 2022. Impact of Suprathermal and Beam Electrons on Nonlinear Electrostatic Waves in an Electron-Positron Plasma, 48th EPS Conference on Plasma Physics (Virtual), June 27– July 1.
- [16] 2022. Hydrodynamic Simulations of Starburst-driven Superwinds and Superbubbles, Computational Astrophysics in the ngVLA Era, Flatiron Institute, New York, USA, June 7–12.

- [15] 2022. Black hole spins in radio-quiet type I active galaxies: Markov chain Monte Carlo based analysis, APS April Meeting (Virtual), USA, April 9–12. [APS](#)
- [14] 2021. Silicon K-edge dust properties of neutron star low-mass X-ray binaries, IAU Symposium 363: Neutron Star Astrophysics at the Crossroads (Virtual), Nov 29–Dec 3. doi:[10.6084/m9.figshare.17125601](#)
- [13] 2021. Positron-acoustic solitons in an electron-positron plasma with beam electrons and kappa-distributed electrons, 63rd Annual Meeting of the APS Division of Plasma Physics, Pittsburgh, PA, USA, Nov 8–12. [APS](#) doi:[10.6084/m9.figshare.17125547](#)
- [12] 2021. Radiatively Cooling Galactic Winds in Star-forming Galaxies, 1st KIAA Forum on Gas in Galaxies (KooGiG) for Early Career Scientists (Virtual), Nov 1–5. doi:[10.6084/m9.figshare.17125580](#)
- [11] 2021. The Formation of Catastrophically Cooling Outflows in Star-forming Regions via Non-equilibrium Radiative Cooling, Star Formation: From Clouds to Discs, Malahide, Ireland, Oct 18–21. doi:[10.5281/zenodo.5570928](#)
- [10] 2021. Electron Beam-Plasma Interaction in an Electron-Positron Plasma System with κ -distributed Electrons, 48th NPSS/IEEE ICOPS (Virtual), Stateline, NV, USA, Sept 12–16. doi:[10.6084/m9.figshare.16638280](#)
- [9] 2018. Discovery of Low-ionization Envelopes in NGC 5189: Spatially-resolved Diagnostics from HST Observations, AAS Winter 231st Meeting, Washington, DC, USA, January 8-12. doi:[10.6084/m9.figshare.5838564](#)
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- [7] 2014. Orientation of Galactic Bulge Planetary Nebulae toward the Galactic Center, IAU Symposium 312, Beijing, China, August 25–29. doi:[10.6084/m9.figshare.13698892](#)
- [6] 2014. Physical and Chemical Properties of Planetary Nebulae with WR-type Nuclei, 12th Asia-Pacific Regional IAU Meeting, Daejeon, Korea, August 18–22. doi:[10.6084/m9.figshare.5765565](#)
- [5] 2014. Electron-acoustic Solitons in an Electron-beam Plasma System with κ -distributed Electrons, 41th IEEE ICOPS/BEAMS, Washington DC, USA, May 25–29. doi:[10.1109/PLASMA.2014.7012747](#)
- [4] 2011. Photoionization Modeling of the Galactic Planetary Nebulae Abell 39 and NGC 7027, IAU Symposium 283, Puerto de la Cruz, Tenerife, Spain, July 25–29. doi:[10.6084/m9.figshare.4775311](#)
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- [2] 2011. A Search for Type Ia Supernova Progenitors: NGC 2392 and NGC 6026, IAU Symposium 281, Padova, Italy, July 4–8. doi:[10.6084/m9.figshare.4775302](#)
- [1] 2011. Electron Beam-Plasma Interaction in a Dusty Plasma with Excess Suprathermal Electrons, ICPDP6, Garmisch-Partenkirchen, Germany, May 16–20. doi:[10.6084/m9.figshare.4775272](#)

Public Outreach

- [1] 2021. *Webb-O-Lanterns and More*, Subject Matter Expert & Speaker for NASA’s Webb Space Telescope Community Events, North Liberty Library, North Liberty, IA, USA (Virtual), October 28.

Dissertation and Thesis

- 2014. PhD: *Evolution of Planetary Nebulae with WR-type Central Stars*, Macquarie University, Australia. ProQuest Dissertations & Theses – Publication Number: [AAT 3739337](#); ISBN: [9781339299334](#); Source: Dissertation Abstracts International, Volume: 77/04(E), Section: B.; 587 p. doi:[10.5281/zenodo.47794](#) [ADS](#) Dissertation Summary: [PASP](#), [127](#), [499](#), 2015. doi:[10.1086/681244](#)
- 2009. MS: *Propagation of Electron-Acoustic Waves in a Plasma with Suprathermal Electrons*, Queen’s University Belfast, UK. ProQuest Dissertations & Theses – Publication Number: [AAT 1604991](#); ISBN: [9781339299358](#); Source: Master Abstracts International, Volume: 55-02(E); 83 p. doi:[10.5281/zenodo.47796](#) [ADS](#)

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