

Peter A. Craig

CONTACT INFORMATION	Peter Craig 287 Legacy Park Dr. #6 Charlotte, MI 48813 USA	Phone: +1-518-524-5579 E-mail: craigpel@msu.edu Website: https://adkpete.github.io/
RESEARCH INTERESTS	Multiwavelength Observations of Classical, Recurrent, and Symbiotic Novae: shocks and dust formation in novae, Type Ia SN progenitors, the potential and structure of the Milky Way, dark matter substructure, gravitational lensing, and the Hubble tension.	
PROFESSIONAL EXPERIENCE	<ul style="list-style-type: none">• Postdoctoral Researcher at Michigan State University, East Lansing, MI<ul style="list-style-type: none">• Multiwavelength observations of classical novae 09/2023 to present• Working with Dr. Laura Chomiuk and Dr. Elias Aydi• Includes experience taking spectra with the SOAR Telescope	
EDUCATION	Rochester Institute of Technology , Rochester, NY Ph.D., Astrophysical Sciences and Technology , August 2023 <ul style="list-style-type: none">• Thesis Title: “<i>Examining the Universe with Galaxies: From Dynamical Models to the Inference of Cosmological Parameters</i>”• Adviser: Dr. Sukanya Chakrabarti M.S., Astrophysical Sciences and Technology , July 2020 <ul style="list-style-type: none">• Thesis Title: “<i>Galaxies as Probes of the Universe: From Dynamical Models to the Inference of Cosmological Parameters</i>”• Adviser: Dr. Sukanya Chakrabarti• GPA: 4.0 Rensselaer Polytechnic Institute , Troy, NY B.S., Physics and Mathematics , June 2018 <ul style="list-style-type: none">• <i>Summa cum Laude</i> Dual Major in Physics and Mathematics• GPA: 3.93	
PUBLICATION LIST	<ul style="list-style-type: none">[1] Aydi, E., Monnier, J., Mérand, A., ..., Craig, P. et al. Multiple outflows and delayed ejections revealed by early imaging of novae, <i>Nature Astronomy</i>[2] Chakrabarti, S., Chang, P., Profumo, S., Craig, P. Constraints on a dark matter sub-halo near the Sun from pulsar timing, Accepted by <i>Physical Review Letters</i>[3] Frincke, T., Yaginuma, A., Noonan, J., Hsieh, H., Seligman, D., Holt, C., Strader, J., Do, T., Craig, P., Molina, I. Near-Discovery SOAR Photometry of the Third Interstellar Object: 3I/ATLAS, Submitted to <i>Monthly Notices of the Royal Astronomical Society</i> 2025	

- [4] **Craig, P.**, Aydi, E., Chomiuk, L., et al. What determines the γ – ray luminosities of classical novae?, Accepted by *Monthly Notices of the Royal Astronomical Society* 2025
- [5] **Craig, P.**, Chakrabarti, S. et al. A map of the outer gas disk of the Galaxy with direct distances from young stars, *The Astrophysical Journal* 2025
- [6] **Craig, P.**, Aydi, E., Chomiuk, L., et al. Revisiting the Classics: On the Optical Colours of Novae as Standard Crayons, *Monthly Notices of the Royal Astronomical Society* 2025
- [7] Kyer, R., Subhroja, R., Strader, J., Urquhart, R., Molina, I., **Craig, P.**, Chomiuk, L., Multiwavelength Evidence for Two New Candidate Transitional Millisecond Pulsars in the Sub-luminous Disk State: 4FGL J0639.1–8009 and 4FGL J1824.2+1231, Accepted by *The Astrophysical Journal* 2025
- [8] Chong, A., Aydi, E., **Craig, P.**, et al. Revisiting the Classics: On the Statistics of Dust Formation in Novae *Monthly Notices of the Royal Astronomical Society* 2025
- [9] **Craig, P.**, O’Connor, K., Chakrabarti, S. et al. A targeted search for strongly lensed supernovae and expectations for targeted searches in the Rubin era, *Monthly Notices of the Royal Astronomical Society* 2024
- [10] Molina, I., Chomiuk, L., Linford, J., Aydi, E., Mioduszewski, A., Mukai, K., Sokolovsky, K., Strader, J., **Craig, P.**, et al. The symbiotic recurrent nova V745 Sco at radio wavelengths *Monthly Notices of the Royal Astronomical Society* 2024
- [11] Chakrabarti, S., Simon, J., **Craig, P.** et al. A non-interacting Galactic black hole candidate in a binary system with a main-sequence star, *AAS Journals* 2023
- [12] **Craig, P.**, Chakrabarti, S., Sanderson, R., Nikakhtar, F. Building an Acceleration Ladder with Tidal Streams and Pulsar Timing, *The Astrophysical Journal Letters* 2023
- [13] **Craig, P.**, Chakrabarti, S., Baum, S., and Lewis, B. An estimate of the mass of the Milky Way from the Magellanic Stream, *Monthly Notices of the Royal Astronomical Society* 2022
- [14] **Craig, P.**, Chakrabarti, S., Newberg, H., and Quillen, A. Dynamically produced moving groups in interacting simulations, *Monthly Notices of the Royal Astronomical Society* 2021
- [15] Chakrabarti, S., Wright, J., Chang, P., Quillen, A., **Craig, P.** et al. Toward a Direct Measure of the Galactic Acceleration, *The Astrophysical Journal Letters* 2020
- [16] Gaspard, M., **Craig, P.**, Bergland, E., An Integro-Differential Model of Language Competition, *SIAM Undergraduate Research Online*, 12, 94-104, 2019

INVITED TALKS	[1] Craig, P. , Aydi, E., et al. Spectroscopic Evolution of Classical Novae In: <i>Golden Age of Cataclysmic Variables and Related Objects VII</i> , Sept 3–6, 2025, Mondello, IT	
	[2] Craig, P. , Aydi, E., Chomiuk L., et al. What determines the γ -ray luminosities of classical novae? In: <i>Golden Age of Cataclysmic Variables and Related Objects VII</i> , Sept 3–6, 2025, Mondello, IT	
CONFERENCE TALKS	[1] Craig, P. , Aydi, E., Chomiuk, L., et al. On the Optical Colours of Novae as Standard Crayons In: <i>Symbiotic stars, weird novae, and related embarrassing binaries</i> , June 3–7, 2024, Prague CZ	
	[2] Craig, P. , Chakrabarti, S., Sanderson, R., Nikhathar, F., Reino, S. Building an Acceleration Ladder with Tidal Streams and Pulsar Timing. In: <i>Towards Real-Time Galactic Dynamics</i> , July 25–29 2022. Lorentz Center, Leiden, NL	
	[3] Craig, P. , Chakrabarti, S., Sanderson, R., Nikhathar, F., Reino, S. Building an Acceleration Ladder with Tidal Streams and Pulsar Timing. In: <i>AAS Division on Dynamical Astronomy meeting #53</i> , April 25–28, 2022. Flatiron Institute, New York, NY	
	[4] Craig, P. , Newberg, H., Chakrabarti, S. Do Perturbations from Dwarf Galaxies Produce Moving Groups in the Milky Way Disk? In: <i>KITP Program Dynamical Models for Stars and Gas in Galaxies in the Gaia Era</i> , March 4–18, 2019. Santa Barbara, CA, USA.	
SUCCESSFUL PROPOSALS	[1] Science PI, “Comparison of Gamma-Ray and Supersoft X-ray Emission in Nova Eruptions”, Fermi Proposal, Accepted by science committee – current status is uncertain due to program budget uncertainty; Anticipated award of \$80,000, 2025	
	[2] Co-Principal Investigator, “Fundamental Galactic parameters from Direct Acceleration Measurements”, VLT/ESPRESSO 2021, Awarded 35 hours	
	[3] Co-Principal Investigator, “Lensed Supernovae at Low Redshift”, LCO Proposal 2019, Awarded 100 hours	
	[4] Co-Principal Investigator, “Lensed Supernovae at Low Redshift”, LCO Proposal 2019, Awarded 205 hours	
	[5] Co-Principal Investigator, “Lensed Supernovae at Low Redshift”, LCO Proposal 2018, Awarded 200 hours	
STUDENT MENTORING	• Advised summer research projects for PAREDS students	2024, 2025
	• Mentored undergraduates as part of an REU program	2022, 2023

AWARDS

- 1-year DOE Office of Science Graduate Student Research (SCGSR) Program at Lawrence Berkeley National Laboratory 09/2021 - 09/2022
- Inducted into the Phi Kappa Phi honor society 2021
- RPI Founders award 2017

TEACHING EXPERIENCE

Rochester Institute of Technology, Rochester, NY

Teaching Assistant 08/2018 - 05/2019

- Introduction to Special Relativity
- Electricity and Magnetism

Rensselaer Polytechnic Institute, Troy, NY

Tutoring 08/2016 - 05/2018

- RPI drop-in tutoring for differential equations and multivariable calculus

Rochester Chess Center, Rochester NY

Chess Teaching 08/2018 - 03/2020

- Taught chess to young students at local elementary schools

PROGRAMMING SKILLS

Programming Languages and Analysis Techniques

- Python, Fortran, C, SQL/ADQL
- Experienced with data analysis and MCMC methods
- Image analysis, difference imaging, and algorithm development
- Data reduction with IRAF
- Analyzing multi-wavelength data

OUTREACH AND LEADERSHIP

- American Association of Variable Star Observers (AAVSO) board member
 - Appointed position, 12/2025 - 12/2026
- Public Observing at the MSU Observatory 2023 - Present
- Presented at Astronomy on Tap in Lansing 2025
- Star parties in the Adirondacks and at an independent school 2020 - 2022
- Designed astronomy demos and presented at Imagine RIT 2019
- Rensselaer Astrophysical Society President / Vice President 2016 - 2018
- Outreach Coordinator for the RPI Society of Physics Students 2016