

**Curriculum Vitae**  
**DIPANKAR MAITRA**

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**Employment**

- Associate Professor, Dept. of Physics & Astronomy, Wheaton College, USA. July 2019 – present.
- Assistant Professor, Dept. of Physics & Astronomy, Wheaton College, USA. August 2013 – June 2019.
- Postdoctoral researcher, Dept. of Astronomy, Univ. of Michigan, USA. September 2009 – July 2013.
- Postdoctoral researcher, Astronomical Institute “Anton Pannekoek”, Univ. of Amsterdam, Netherlands. November 2006 – August 2009.

**Education**

- Ph.D. in Astronomy, Yale University, USA, 2006.
- M. Phil., Yale University, USA, 2004.
- M. S. in Astronomy, Yale University, USA, 2003.
- M. S. in Physics, Indian Institute of Technology, Kanpur, India, 2001.
- B. S. in Physics, Presidency College, Kolkata, India, 1999.

**Awards**

- Garfinkel Prize Fellowship at Yale University (2002–2005).
- Proficiency Award for the highest academic performance in Physics, IIT Kanpur (2001).
- Award for best experimental project in Physics, IIT Kanpur (2001).

**Research Interests**

- Relativistic jets from black holes and neutron stars.
- Accretion disk–jet coupling in X-ray binaries and active galactic nuclei.
- Testing general relativity in the strong field limit near black holes.

## Teaching

- First Year Seminar: *Eyes to the Universe* — Fall 2016, Fall 2019.
- AST-130: *The Universe* — Fall 2013–2017, Summer 2015–2016.
- AST-202: *Frontiers of Astronomy* — Spring 2014, Spring 2016.
- AST-272: *Introduction to Astrophysics* — Fall 2015, Fall 2017, Fall 2019.
- AST-302: *Advanced Astrophysics* — Spring 2014, Fall 2019.
- AST-305: *Observational Astronomy* — Spring 2015, Fall 2016, Fall 2018.
- PHYS-170: *Introductory Physics I* — Fall 2014, Fall 2019.
- PHYS-171: *Introductory Physics II* — Spring 2015–2018.
- PHYS-180: *Enhanced Introductory Physics I* — Fall 2014, Fall 2019.
- PHYS-181: *Enhanced Introductory Physics II* — Spring 2015–2018.
- PHYS-311: *Classical Mechanics* — Spring 2018.
- ASTRO-101: *The Solar System and Search for Life Beyond Earth*, Summer 2012, Fall 2012, Spring 2013 (at Univ. of Michigan).
- Teaching Fellow for: *Introduction to Astronomical Observing* (ASTRO 155 at Yale Univ.) - Fall 2004; *Planets and Stars* (ASTRO 111 at Yale Univ.) - Fall 2002, Spring 2004; *Galaxies and the Universe* (ASTRO 120 at Yale Univ.) - Spring 2002; *Introduction to Cosmology* (ASTRO 270 at Yale Univ.) - Fall 2001.

## Peer Reviewed Publications

The full list of my peer reviewed publications is attached separately. A short summary is given below.

- *Total number of peer reviewed publications: 50*
- *First-author publications among these: 11*
- *Second-author publications among these<sup>1</sup>: 4*
- *Since coming to Wheaton:*
  - *Total number of peer reviewed publications: 19*
  - *First-author publications: 2*
  - *Second-author publications: 2*

## Awarded Grants

External funding

- *What is Where? Using Eclipses to Probe Physical Conditions Along the Jet in SS 433.* A proposal to use the Chandra X-ray Observatory to observe the source SS 433. Funding agency: NASA/Chandra X-ray Center. Period: 2017-2018. Award: USD 72,390.

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<sup>1</sup>Typically these are papers where either I mentored the first author or where I spent a significant time working on the data processing and analysis.

- *Probing Radiatively Inefficient Accretion Flow in Aquila X-1 During Its Low-Intensity State.* A Target of Opportunity (ToO) proposal to use the Chandra X-ray Observatory. Funding agency: NASA/Chandra X-ray Center. Period: 2017-2018. Award: USD 61,837.
- *Probing Radiatively Inefficient Accretion Flow in Aquila X-1 During Its Low-Intensity State.* A ToO proposal to use the Chandra X-ray Observatory. Funding agency: NASA/Chandra X-ray Center. Period: 2016-2017. Award: USD 48,160. [The observing criteria were not met during this cycle, and the observation was not made.]
- *Bodies in Motion: From Microscopic to Astronomical.* Co-PI with Prof. Jenny Lanni and Prof. Laura Ekstrom at Wheaton. Funding agency: NASA Rhode Island Space Grant Consortium. Period: Summer of 2016. Award: USD 3,000.
- *Studying the Time-Evolution of Accretion Flows in the Black Hole Candidate J1910.2–0546.* Funding agency: NASA Rhode Island Space Grant Consortium. Period: Summer of 2014. Award: USD 4,000.
- *Unravelling Disk-Jet coupling in Seyfert 1 Active Galactic Nuclei via Broadband Spectral Modeling.* Funding agency: NASA/Chandra X-ray Center. Period: 2012-2013. Award: USD 28,000.
- *Swift Monitoring of the Enigmatic X-ray Binary System 4U 1957+11.* Funding agency: NASA/Swift Mission Operations. Period: 2011-2012. Award: USD 30,000.
- *Coordinated Swift/Optical/Near-IR Observations of Soft X-ray Transients.* Funding agency: NASA/Swift Mission Operations. Period: 2010-2011. Award: USD 31,700.

Internal funding (supported by Wheaton College)

- *Studying Photon Arrival Time Lags in an Accretion Disk + Lamp Post Model.* Mars Faculty-Student Summer Research Award. Period: Summer of 2018. Award: USD 3000 (faculty) + USD 3000 (student) + USD 1000 (equipment).
- *Studying the Motion of Proxima Centauri.* Mars Faculty-Student Summer Research Award. Period: Summer of 2017. Award: USD 3000 (faculty) + USD 3000 (student) + USD 1000 (equipment).
- *Research Computing Grant* awarded by the Library, Technology and Learning Committee. Period: Spring 2017 semester. Award: USD 1310.
- *The Wheaton Spectrograph Assembly, Calibration, and Research.* Faculty Summer Research Award. Period: Summer of 2016. Award: USD 3000.
- *Studying the Time Evolution of the Relativistic Jet in a Black Hole X-ray Binary.* Mars Faculty-Student Summer Research Award. Period: Summer of 2015. Award: USD 3000 (faculty) + USD 3000 (student) + USD 1000 (equipment).
- *360° Panoramic Video and Projection.* Special Interest Group (SIG) interdisciplinary project, awarded jointly to Prof. Patrick Johnson (Asst. Prof. of Filmmaking at Wheaton College) and DM. Period: Summer of 2015. Award: USD 2000 (Prof. Johnson), USD 2000 (DM), USD 3000 (student support).
- *Exploring Correlations Between Infrared, Optical, and X-rays Neutron Star X-ray Binaries.* Mars Faculty-Student Summer Research Award. Period: Summer of 2014. Award: USD 3000 (faculty) + USD 3000 (student) + USD 1000 (equipment).

- *Probing Accretion Physics Near Black Holes and Neutron Stars*. Wheaton Research Partnership Grant to support student research. Period: 2013-2014, 2014-2015, 2015-2016. Award: USD 900, 900, 900.
- *Academic Innovation Grant* awarded by the Library, Technology and Learning Committee. Period: Spring 2014 semester. Award: USD 1650.

## Student supervision

- Co-supervision of Honors Thesis of Sean MacBride '20 (redshift-dependent evolution of dark matter fraction in galaxies; Fall 2019).
- Supervision of Dylan Schmitt's Independent Research project (cross-calibration of X-ray spectra of SS 433 obtained using *Chandra* and *NICER*; Fall 2019).
- Ishaan Madan '22 (Independent Study – Exoplanet Transit Detection; Fall 2019)
- Benjamin Fields '23 (Independent Study – Detection of Near-Earth Technosignatures; Fall 2019)
- Summer research of Dylan Schmitt '20 (cross-calibration of X-ray spectra of SS 433 obtained using *Chandra* and *NICER*; Summer 2019).
- Honors thesis of Xinyi Liu '19 (*Chandra* spectroscopy of SS 433).
- Summer research of Johnathan Prideaux '20 (studying photon arrival time lags in an accretion disk plus lamp post model; Summer 2018).
- Summer research of Bingchen Liu '21 (asteroid astrometry and orbit determination; Summer 2018).
- Summer research of Dylan Schmitt '20 (observing variable stars and exoplanets using the Wheaton College Observatory; Summer 2018).
- Summer research of Xinyi Liu '19 (modeling the proper motion of Proxima Centauri based on data from Wheaton's telescope in Australia; Summer 2017).
- Summer research of Macgregor Sullivan '18 (construction of an astronomical spectrograph; Summer 2016).
- Summer research of Yuying Sun '17 (studying the motion of simple and chaotic pendulums; Summer 2016).
- Summer research of Raymond Zhang '17 (motion of Barnard's Star; Summer 2016; funded by NASA/Rhode Island Space Grant).
- Supervision of John Scarpaci's independent research project, focusing on accretion onto compact objects (Fall 2016).
- Along with Prof. Tim Barker, co-supervision of independent project of student Aaron Portanova (designing a *Lhoumeau Design Digital Planetarium*; Fall 2016).
- Supervision of Wheaton Research Partnership student Madison Borrelli during Fall 2015 and Spring 2016 (designing a sundial customized for Wheaton/Norton).

- Supervision of summer research of Ryan Dill '15 and John Scarpaci '17 (funded by Wheaton College and NASA/Rhode Island Space Grant).
- Supervision of Wheaton Research Partnership students Ryan Dill, Sean Weinstein.
- Supervision of independent research (Timing Analysis of X-ray Binaries) by Allegra Kurtz-Rossi '15.
- Co-supervision of Bachelor's thesis project of P. van Oers (Univ. of Amsterdam) - 2008-09.
- Co-supervision of Master's thesis project of K. Leventis (Univ. of Amsterdam) - 2007-08.

### Service to the Department and the College

- **Committees:**

- Member of the *Advisory Committee* (2017–2019).
- Member of the *Library Technology and Learning Committee* (2014–2016).
- Member of the *Center for Global Education Advisory Sub-Committee* (2016–2017).

- **Search committees:**

- Member of the search committee for *Director of Research & Instructions* (2017-2018).
- Member of the search committee for *Science Liaison* (2016).
- Member of the search committee for *Associate Director for Study Abroad* in the Center for Global Education (2016).
- Member of the search committee for *Director of Library Resources* (2015).
- Since 2015 I have been a member of the panel that selects student candidates for the prestigious Watson Fellowship.

- **Development of curricular materials and pedagogical methods:**

- In collaboration with Profs. Thandi Buthelezi (Chemistry) and Jenny Lanni (Biology), we piloted three STEM focused First Year Seminar sections. My section, named *Eyes to the Universe*, included a large hands-on component and hence experiential learning, joint interdisciplinary labs, and extensive discussion sections. The section was well received by the students and almost half of the students in the section have become Physics majors and Astronomy minors.
- I developed the course *Frontiers of Astronomy* which is based on peer review and scientific proposal writing. In this class students come up with proposals that address unsolved problems in astronomy, and how they would address such problems with the *Hubble Space Telescope*. These student proposals are peer reviewed by the class.

- **Web content management and general organization during the 2016 Spring Meeting of the APS New England Section:** The 2016 Spring Meeting of the APS New England Section was held at Wheaton on April 1–2, 2016. In addition to general organizational help, I created and managed the webpages for the conference. I also chaired a session on the second day of the conference.

- **Public Outreach:** Previously the Physics and Astronomy Department offered Open Nights (astronomical observing event at the observatory, open and free to the public) approximately two Fridays every month. In order to increase our outreach efforts, since the start of Fall 2016 semester, Anthony Houser, Prof. Tim Barker and I are offering public nights every clear Friday night during the school year. Not only does it boost the college's outreach efforts, it also helps train our students who work as observatory assistants during these events.

### Synergistic Professional Activities

- Membership in Professional Societies:
  - American Astronomical Society (High-Energy Astrophysics Division)
  - American Physical Society (Astrophysics Division)
  - American Association of Variable Star Observers
- Reviewer for the following peer reviewed journals:
  - The Astrophysical Journal
  - Monthly Notices of the Royal Astronomical Society
  - Astronomy & Astrophysics
- Peer review panelist for various programs:
  - For proposals submitted to NASA's Chandra X-ray Observatory mission (2010, 2011, 2014, 2017).
  - For proposals submitted to the NuSTAR mission (2018).
  - NASA's Experimental Program to Stimulate Competitive Research (EPSCoR; 2015).
  - For proposals submitted to the 2015 NASA Astrophysics Data Analysis Program (ADAP; 2015).
  - For proposals submitted to NASA's Swift mission (2011).
  - For proposals submitted to the NASA's Rossi X-ray Timing Explorer (RXTE) mission (2009, 2010).
- Chaired a session during the Spring 2016 meeting of the American Physical Society held at Wheaton.

### Public Outreach

- Co-organizer of the public observing nights at Wheaton.
- Helped in organizing and running "public nights" at Yale Student Observatory, to show the treasures of the night sky to the general public, since 2001.
- Numerous popular astronomy lectures at various schools and colleges.
- Organizing telescopic observations as well as talks for a general audience during events of popular interest like eclipses, transits, occultations etc.
- Participated in the restoration of a 19<sup>th</sup> century 8" *Grubb* refractor telescope at Yale.