

EDUCATIONAL ACTIVITIES

Formal Courses Taught (salaried)

Academic years 2008-2014. Physics 1111 (Astronomy Survey Course) and Physics 1110 (Science Survey Course) at Northeastern University.

Summers 2004-2013. Seminars for Harvard Summer School. Department of Continuing Education.

Spring 1995. Astronomy 440: Stellar Structure. University of Maryland Visiting Associate Professor. A senior level course for astronomy majors.

Fall 1994. Astronomy 688: X-ray Astronomy. University of Maryland Visiting Associate Professor. A graduate course on X-ray astronomy including in particular the radiative processes of importance in X-ray production. This was a new course offering that I designed.

Summer 1983. Astronomy 100: Introduction to Astronomy. Columbia University Summer Faculty. Science requirement for non-science majors.

Students and postdoctoral fellows supervised

April 2020. External thesis committee member for McKinley Brumback, Dartmouth. McKinley is currently a post-doctoral fellow at CalTech.

Summer 2019- Zoe de Beurs, SAO REU intern (University of Texas) Statistical analysis of multi-dimensional data. “Comparative Study of Machine Learning Methods for X-ray Binary Classification” (de Beurs, Islam, Gopalan, Vrtilek; submitted to ApJ in 2020) Goldwater Scholar; Mitchell Outstanding Undergraduate Research. She is currently applying for Graduate schools.

2018- Dr. Nazma Islam; currently (2019-2021) postdoctoral fellow at NASA/GSFC. “Comparing X-ray color selection in separating X-ray binary classes using Color-Color-Intensity diagrams” (Islam, Vrtilek, Boroson, etal; New Astronomy, 2020 in press)

Summer 2017. External thesis committee member for Jun Yang. U.Mass, Lowell. Jun Yang is currently a post-doctoral fellow at MIT.

Academic Year 2016-2017 Chair of Post-doctoral Research Review Committee for Yanli Qui (National Astronomical Observatory of China).

Summer 2016, Kaley Brauer SAO REU intern (Brown University). “Tomograms of X-ray Binary System V801 Ara from Optical Spectroscopy.” Brauer, Vrtilek, Peris, & McCollough), MNRAS, 478, 4894. Kaley is currently a graduate student at MIT.

Spring 2016 Nazma Islam, Graduate student (Tata Institute) Supervisor of visit to CfA as COSPAR Fellow. Received PhD from Raman Research Institute in October 2016. She is currently a post-doctoral fellow at NASA/Goddard Space Flight Center (2019-2021).

2014-2016: Charith Peris (Northeastern University) Smithsonian pre-doctoral fellow Awarded 2 nights of Magellan/IMACS for early May 2014. “Tomography of X-ray Nova Muscae 1991: Evidence for ongoing mass transfer and stream-disc overflow” (Peris et al) MNRAS, 2015, 449, 1584. “X-ray Spectral Analysis of the Steady States of GRS 1915+105” (Peris et al) 2016, ApJ, 822, 60. Successfully defended his PhD thesis on March 29, 2016 and is currently a Research Scientist at Alexa AI.

Summer 2014; Summer 2015 Giridhar Gopalan (Graduate student, Harvard University) Statistical analysis of multi-dimensional data. “A Bayesian Model for the Detection of X-ray Binary Black Holes.” (Gopalan, Bornn, & Vrtilek) 2015, AAS, 22522501. “Classifying X-ray binaries: A Probabilistic Approach” (Gopalan, Vrtilek, & Bornn) 2015, ApJ, 809, 40. Giri is currently a Professor of Statistics at California Polytechnic State Institute.

Academic year 2012-2013: Stewart Buchan (Masters student, University of Southampton). Masters student: Multivariate study of XRBs Stewart received his Masters in 2013 and is currently in the PhD program at Southampton.

Academic year 2012-2013: Jan Cechura (Graduate student, Charles University, Prague) Smithsonian pre-doctoral fellow. Completed PhD in 2014. Currently a postdoctoral fellow at the Astronomical Institute of the Academy of Sciences of the Czech Republic. “Interpreting the X-ray state transitions of Cygnus X-1.” (Cechura, Vrtilek, & Hadrava) 2015, MNRAS, 450, 2410.

2011-2014: Charith Peris (Northeastern University, Boston) Completed Masters thesis under my supervision. “Tomographic study of V691 CrA” (Peris & Vrtilek) 2012 MNRAS, 427, 1043. “Variability of the accretion disk of V926 Sco inferred from tomographic analysis.” (Calvelo, Peris, & Vrtilek) 2013, ApJ, 177, 761.

Academic year 2011-2012: Sam Connolly (University of Southampton). Masters student (degree received 2012). “Variability of the accretion disk of V926 Sco inferred from tomographic analysis.” (Calvelo, Peris, & Vrtilek) 2013, ApJ, 177, 761. Sam finished his PhD from Southampton in 2015 and is currently a post doctoral fellow there.

2011-2012: Petri Savolainen (Aalto University). SAO Pre-doc. Member of PRRC.

2009-2012: Herbert Paolo (Iowa State). SAO Pre-doc. Chair of pre-doctoral research review committee (PRRC).

Summer 2009, Li-Wei Hung SAO REU intern (Ohio State). “Suzaku X-ray spectra and pulse profile variations during the superorbital cycle of LMC X-4” (Hung, Hickox, Boroson, & Vrtilek), 2010 Astrophysical Journal (ApJ), 720, 1202. Li-Wei won an award for best student poster at the meeting “Chandra’s Decade of Discovery”, 22-25 Sept, 2009 Bos,

MA. She received her PhD from UCLA (where she was a NSF Graduate Research Fellow) in 2016. She works at the Natural Sounds and Night Skies Division of the National Park Service.

2008-2009: Karri Kaljonen (Aalto University). SAO Pre-doc. Member of PRRC. Karri received his PhD in 2013.

Academic year 2008-2009: Dan Calvelo (University of Southampton). Masters student (degree received 2009). “Doppler and modulation tomography of XTE J1118+480 in quiescence” (Calvelo, Vrtilik, Neilsen, Torres, Steeghs, Hernandez, & Filippenko) 2009, MNRAS, 399, 539. Dan received his PhD in 2012 from Southampton and is currently a postdoctoral fellow there.

Academic year 2006-2008 Joey Neilsen (Graduate student, Harvard University). I was supervisor of his 2nd year Research project “The eccentric accretion disk of the black hole A0620-00” (Neilsen, Steeghs, & Vrtilik) 2008 MNRAS, 384, 849. “Spectroscopic signatures of the superorbital period in the neutron star binary LMC X-4” (Neilsen, Lee, Nowak, Dennerl, & Vrtilik) 2009 ApJ, 696, 182. Neilsen received the AAS Chambliss award for his poster on this topic. He received his PhD from Harvard in 2011, served one year as a postdoctoral fellow at MIT and is currently a post-doc at Boston University.

Summer 2006. Adrienne Hunacek (MIT). SAO REU intern. “UV observations of the X-ray photoionized wind of Cyg X-1” (Vrtilik, Boroson, Hunacek, Geiss, & Bolton) 2008 ApJ, 678, 1248. Adrienne obtained a law degree in 2010 from Boston College.

Summer 2004, Joey Neilsen (Kenyon College). SAO REU intern. “Phase variations in the pulse profile of SMC X-1” (Neilsen, Hickox, & Vrtilik) 2004 ApJ Letters, 616, 135. Joey received his PhD from Harvard University 2011, and is currently a postdoctoral fellow at Boston U.

Summer 2004: Ryan Hickox (Graduate student, Harvard University). I was on his 2nd year project review committee. “Pulse-phase spectroscopy of SMC X-1 with Chandra and XMM: reprocessing by a precessing disk?” (Hickox & Vrtilik) 2005 ApJ, 637, 1148. Ryan received his PhD from Harvard in 2007 and is currently on the faculty at Dartmouth.

Summer 2002, Holly Maness (Grinnel College). SAO REU intern. “Nebular vs. Stellar Wind Abundances in NGC 654”, 2003 Publications of the Astronomical Society of the Pacific (PASP), 115, 1002. “Abundance Anomalies in the X-ray Spectra of the planetary nebulae NGC7027 and BD+30 3639” (Maness, Vrtilik, Kastner, & Soker) 2003 ApJ, 589, 439. Holly was a Barry Goldwater Scholar from 2002-2004 and received her PhD from UC Berkeley in 2010. She is currently a postdoctoral fellow at UCB.

Spring 2001, Visiting postdoctoral fellow Hannah Quintrell was supported for work on Chandra/HST data of SMC X-1. “Simultaneous Chandra and Hubble Space Telescope Observations of SMC X-1” (Vrtilik, Raymond, Boroson, Kallman, Quintrell, McCray), ApJ, 563L, 139.

Summer 1999, Visiting postdoctoral fellow Hannah Quintrell and student Diana Maxwell undertook observations with the Tillinghast 60-inch on Mt. Hopkins. HQ was also sup-

ported for observations at the South African Astronomical Observatory in Oct and Nov of 2000. “Spectral signatures of reprocessing on Hercules X-1/HZ Hercules” (Quaintrell, Still, Vrtilek) AIPC, 2001, 599, 878. “Multiwavelength Studies of Hercules X-1 during Short High and Anomalous Low States: On-again, Off-again” (Vrtilek, Quaintrell, Boroson, and five more) ApJ, 2001, 549, 522. Hannah was co-author on an additional four refereed papers between 2000-2001.

Summer 1999, Michael Preciado (Tufts University). Smithsonian Institution minority intern. “The UV light curve of LMC X-4: X-ray heating of the star and accretion disk” (Preciado, Boroson, & Vrtilek) 2002 PASP, 2002, 340.

1996-1999, Bram Boroson, post-doctoral fellow at SAO. Resulted in seven papers; Boroson as first author on five

1994-1997, Chun Xu, Astronomy graduate student at UMd, ASCA observations of 4U1254-69. Supervisor of 2nd year project.

1994-1997, Damian Audley physics graduate student at UMd, Physics, Pulse Phase Spectroscopy of Cen X-3. Supervisor of 2nd year project.

1994-1995 Scott Miller, Astronomy graduate student at UMd, Supervisor of 2nd year project.

1994-1995, Fuhua Cheng, post-doctoral fellow at UMd. Resulted in five refereed papers; Cheng as first author on two; Vrtilek as first author on three.

1992-1993, Andrew Silber, post-doctoral fellow at SAO. Resulted in four refereed papers; Silber as first author on one; Vrtilek as first author on two; Zucker as first author on one