

Francesca M. Fornasini

University of California, Berkeley
Astronomy Department
501 Campbell Hall #3411
Berkeley, CA 94720-3411

<https://fmfornasini.wordpress.com>
f.fornasini@berkeley.edu
(301) 915-7767

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| EDUCATION | University of California, Berkeley Ph.D. in Astrophysics M.A. in Astrophysics Advisors: John Tomsick & Mariska Kriek | expected May 2016 Dec 2012 |
| | College of William & Mary B.S. in Physics and English, <i>Summa Cum Laude</i> Honors thesis: “The application of four-wave mixing to cold and ultra-cold atom imaging” Advisors: Seth Aubin & Irina Novikova | May 2010 |
| RESEARCH INTERESTS | My thesis research is focused on high-mass X-ray binaries and other Galactic hard X-ray populations. I am also interested in the evolution of massive stars, compact objects, and the star formation history of the Universe. | |
| AWARDS & HONORS | Trumpler Award, UC Berkeley Astronomy Department Teaching Effectiveness Award, UC Berkeley Outstanding Graduate Student Instructor Award, UC Berkeley NSF Graduate Research Fellow UC Berkeley Fellow E. Gary Clark Memorial Scholarship, College of W&M Physics Department Murray 1963 Scholar, College of W&M | May 2015 May 2012 Mar 2012 2010-2015 2010-2013 May 2010 2006-2010 |
| PUBLICATIONS SUMMARY | First-author publications: 1 published, 2 in preparation Co-author publications: 5 published, 2 submitted, 2 in preparation See full publication list on page 3 | |
| APPROVED PROPOSALS | Fornasini, F. M. (PI), <i>Chandra</i> Archival proposal, Cycle 17 “Investigating the metallicity dependence of high-mass X-ray binaries with a sample of $z \sim 2$ galaxies” | 2015-2017 |
| TEACHING EXPERIENCE | Teaching reference: Prof. Eugene Chiang, echiang@astro.berkeley.edu Co-instructor of “Instructional Techniques in Astronomy” Co-instructor for the Compass Summer Program <ul style="list-style-type: none">Developed the curriculum and co-taught a two-week intensive introduction to the physics of sound for incoming freshmen with an emphasis on model building, experimentation, and problem solving. Compass is an organization run by graduate students that seeks to improve physics instruction and the retention of underrepresented minorities in the sciences at UC Berkeley. | Fall 2013 Summer 2013 |
| | Teaching assistant for “Introduction to Astrophysics” Teaching assistant for “Introduction to General Astronomy” | Fall 2011 Fall 2010 |
| STUDENT MENTORING | Helped mentor undergraduate student, Qinan “Roger” Wang, during his research project with John Tomsick Mentored two undergraduate students, Brian Lopez and Jackie Garcia, majoring in STEM fields through Compass mentoring program | Summer 2015 Fall 2013-present |

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| INVITED TALKS | KIPAC Tea Talk, Stanford | Oct 2015 |
| | High Energy Phenomena Seminar, Harvard-Smithsonian CfA | Sep 2015 |
| | Stellar and Extragalactic Astronomy Seminar, NASA Goddard, “The Search for Faint High-Mass X-ray Binaries” | Sep 2015 |
| | AAS Meeting #225, Seattle, WA, “The NuSTAR Norma Arm Survey” | Jan 2015 |
| CONTRIBUTED TALKS & POSTERS | Poster #345.40, AAS Meeting #225, Seattle, WA | Jan 2015 |
| | Poster #117.01, HEAD Meeting #14, Chicago, IL | Aug 2014 |
| | Talk, NuSTAR science team meeting, Columbia University | Jan 2014 |
| | Talk #204.08, HEAD Meeting #13, Monterey, CA | Apr 2013 |
| | Poster #16, X-ray Binaries: Celebrating 50 Years Since the Discovery of Sco X-1 | Jul 2012 |
| | Poster #428.17, AAS Meeting #219, Austin, TX | Jan 2012 |
| Poster #411.06, AAS Meeting #215, Washington, DC | Jan 2010 | |
| PROFESSIONAL ACTIVITIES | <i>Department service</i> | |
| | Public liaison for the UC Berkeley Astronomy Department | 2011-2015 |
| | <ul style="list-style-type: none"> • Answering astronomy questions from the public via e-mail and phone. • Organizing volunteers from the Astronomy Department to participate in the annual Bay Area Science Festival and Cal Day. • Volunteering to run demonstrations, hands-on activities, solar/nighttime telescope viewing, and planetarium shows at the Bay Area Science Festival, Cal Day, Berkeley Sunday Streets, and local schools. | |
| | Astronomy coordinator for the Society of Women in the Physical Sciences | 2011-2015 |
| | <ul style="list-style-type: none"> • Helping organize SWPS dinners and professional development workshops. • Promoting SWPS events in the Astronomy Department. | |
| | Organizer of the annual department community-building spring trip | Spring 2012 |
| | Organizer of the prospective graduate student 3-day visit to the department | Spring 2011 |
| | <i>Collaborations</i> | |
| | NuSTAR science team | 2013-present |
| | MOSFIRE Deep Evolution Field (MOSDEF) collaboration | 2014-present |
| | <i>Observing experience</i> | |
| | Radio/Submillimeter: CARMA Observatory | 4 weeks |
| Near-infrared: SOAR Telescope at CTIO (OSIRIS instrument) | 3 nights | |
| Optical: Shane 3-m at Lick Observatory | 2 nights | |
| PUBLIC OUTREACH | Public talk, Chabot Space & Science Center, Oakland, CA | Jun 2015 |
| | Co-organizer of and volunteer at star parties for San Francisco high schoolers with Bay Area Teen Science group from Space Sciences Laboratory | 2013-2014 |
| | Volunteer at Chabot Space & Science Center, Oakland, CA | Spring 2013 |
| | CoachArt volunteer | Fall 2012 |
| | <ul style="list-style-type: none"> • Fun astronomy activities with my seven-year-old mentee | |
| | Astronomy workshop leader, Expand Your Horizons Conference | Mar 2012 |
| Public talk, Imiloa Astronomy Center, Hilo, HI | Aug 2009 | |

FIRST AUTHOR PUBLICATIONS Fornasini, F. M., Tomsick, J. A., Bodaghee, A., Krivonos, R., Hongjun, A., Rahoui, F., Gotthelf, E. V., Bauer, F. E., Stern, D. (2014) “The Norma Arm Region Chandra Survey: X-ray Populations in the Spiral Arms,” *The Astrophysical Journal*, 796, 105.

In preparation

Fornasini, F. M., the NuSTAR Galactic Plane survey team, et al. (2016) “The NuSTAR Hard X-ray Survey of the Norma Arm Region,” to be submitted in winter 2015/2016.

Fornasini, F. M., et al. (2016) “A broadband X-ray study of IGR J18214-1318 with XMM-Newton and NuSTAR: a non-pulsating high-mass X-ray binary with a neutron star,” to be submitted in winter 2015/2016.

OTHER PUBLICATIONS

Bodaghee, A., Tomsick, J. A., **Fornasini, F. M.**, Rahoui, F., Bauer, F. E. (2015) “A First Look at the X-ray Population of the Young Massive Cluster VVV CL077,” *The Astrophysical Journal*, 801, 49.

Rahoui, F., Tomsick, J. A., **Fornasini, F. M.**, Bodaghee, A., Bauer, F. E. (2014) “Near-infrared spectroscopy of 20 new Chandra sources in the Norma arm,” *Astronomy & Astrophysics*, 568, A54.

Bodaghee, A., Tomsick, J. A., Krivonos, R., Stern, D., Bauer, F. E., **Fornasini, F. M.**, Barriere, N., Boggs, S. E., Christensen, F. E., Craig, W. W., Gotthelf, E. V., Hailey, C. J., Harrison, F. A., Hong, J., Mori, K., Zhang, W. W. (2014) “Initial Results from NuSTAR Observations of the Norma Arm,” *The Astrophysical Journal*, 791, 68.

Tomsick, J. A., Gotthelf, E. V., Rahuoi, F., Assef, R. J., Bauer, F. E., Bodaghee, A., Boggs, S. E., Christensen, F. E., Craig, W. W., **Fornasini, F. M.**, Grindlay, J., Hailey, C. J., Harrison, F. A., Krivonos, R., Natalucci, L., Stern, D., Zhang, W. W. (2014) “NuSTAR J163433-473841: A Fast X-ray Transient in the Galactic Plane,” *The Astrophysical Journal*, 785, 4.

Tomsick, J. A., Bodaghee, A., Rodriguez, J., Chaty, S., Camilo, F., **Fornasini, F.**, Rahoui, F. (2012) “Is IGR J11014-6103 a Pulsar with the Highest Known Kick Velocity?” *The Astrophysical Journal Letters*, 750, L39.

Submitted

Bodaghee, A., Tomsick, J. A., **Fornasini, F. M.**, Krivonos, R., Stern, D., Mori, K., Rahoui, F., Boggs, S. E., Christensen, F. E., Craig, W. W., Hailey, C. J., Harrison, F. A., Zhang, W. W. (2016) “NuSTAR discovery of a cyclotron line in the accreting X-ray pulsar IGR J16393-4643,” submitted to *The Astrophysical Journal*.

Tomsick, J. A., Krivonos, R., Wang, Q., Bodaghee, A., Sylvain, C., Rahoui, F., Rodriguez, J., **Fornasini, F. M.** (2016) “Chandra Observations of Eight Sources Discovered by INTEGRAL,” submitted to *The Astrophysical Journal*.

In preparation

Hong, J., Mori, K., Hailey, C. J., Nynka, M., Zhang, S., Gotthelf, E., **Fornasini, F. M.**, Krivonos, R., Bauer, F., Perez, K., Tomsick, J. A., Bodaghee, A., Chui, J.-L., Stern, D., Grindlay, J. E., et al. (2016) “NuSTAR hard X-ray survey of the Galactic Center region II: X-ray point sources,” to be submitted in winter 2015/2016.

Hailey, C. J., Mori, K., Perez, K., Canipe, A. M., Hong, J., Tomsick, J. A., Boggs, S. E., Christensen, F. E., Craig, W. W., **Fornasini, F. M.**, Grindlay, J. E., Harrison, F. A., Nynka, M., Rahoui, F., Stern, D., Zhang, S., Zhang, W. W. (2016) “Evidence for intermediate polars as the origin of the Galactic Center hard X-ray emission,” to be submitted in winter 2015/2016.