

Katelyn Breivik

Center for Interdisciplinary Exploration and Research in Astrophysics, 2145 Sheridan Rd, Evanston, IL, 60208-3112

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Education

Exp. 2018	Ph.D. in Physics and Astronomy Advisor: Shane L. Larson	Northwestern University
2015	M.S. in Physics and Astronomy Advisor: Shane L. Larson	Northwestern University
2012	B.S. in Physics with Professional Emphasis, Cum Laude	Utah State University

Publications

Characterizing double white dwarf binaries with LISA and Gaia	accepted for publication in ApJL
Breivik, K., KREMER, K., BUENO, M., LARSON, S. L., COUGHLIN, S. KALOGERA, V.; ARXIV:1710.08370	
Revealing black holes with Gaia	2017, ApJ, 850L, 13B
Breivik, K., CHATTERJEE, S., LARSON, S. L.; ARXIV:1710.04657	
Accreting double white dwarf binaries: implications for LISA	2017, ApJ, 846, 2
KREMER, K., Breivik, K., LARSON, S. L., KALOGERA, V.; ARXIV:1707.0110	
Distinguishing between formation channels for binary black holes with LISA	2016, ApJ, 830L, 18B
Breivik, K., RODRIGUEZ, C. L., LARSON, S. L., KALOGERA, V., RASIO, F. A.; ARXIV: 1606.0955	

Publications in Preparation

Variance in Compact Binary Population Synthesis	To Be Submitted March 2017
Breivik, K., LARSON, S. L.	

Honors & Awards

2017	Blue Apple Award Best student talk at the 2017 Midwest Relativity Meeting
2017	NSF GK-12 'Reach for the Stars' Fellow K-12 Teaching Fellowship
2017	Chambliss Astronomy Achievement Award Honorable Mention, 229th AAS Meeting
2016	Northwestern Physics & Astronomy Rapid Fire Research 2nd Place
2014	Illinois Space Grant Consortium Graduate Fellowship Award Amount: \$10,000
2010	Undergraduate Teaching Fellowship Utah State University
2010	Undergraduate Research and Creative Opportunities (URCO) Grant Award Amount: \$2,000
2008	Presidential Fellowship - 4 years Utah State University

Invited Talks and Workshops

Exploring compact-binary astrophysics with multi-messenger astronomy	Greenbelt, MD
ASTROPHYSICS SEMINAR AT NASA GSFC	Scheduled, June 5, 2018
Exploring compact-binary astrophysics with multi-messenger astronomy	Huntsville, AL
ASTROPHYSICS SEMINAR AT NASA MSFC	Scheduled, March 27, 2018
COSMIC probes into compact binary formation and evolution	National Harbor, MD
NASA GW SIG MEETING, 231ST AAS MEETING	January 8, 2018
The Architecture of LISA Science Analysis: Imagining the Future	Pasadena, CA
WORKSHOP AT W. M. KECK INSTITUTE FOR SPACE STUDIES	January 16-19, 2018
Exploring compact binary astrophysics with multi-messenger astronomy	Pasadena, CA
TAPIR SEMINAR AT CALTECH	December 1, 2017
Exploring compact binary astrophysics with multi-messenger astronomy	New York City, NY
ASTRO SEMINAR AT COLUMBIA	November 16, 2017
Exploring compact binary astrophysics with multi-messenger astronomy	New York City, NY
ASTRO SEMINAR AT AMNH	November 14, 2017
Exploring stellar-mass compact binary astrophysics with LISA	Milwaukee, WI
CGCA SEMINAR AT UW MILWAUKEE	June 2, 2017

Contributed Presentations

COSMIC probes into compact binary formation and Evolution

DISSERTATION TALK AT THE 231ST MEETING OF THE AAS

National Harbor, MD

Jan. 2017

Revealing the Milky Way's black hole population with Gaia

TALK AT 27TH MIDWEST RELATIVITY MEETING

Ann Arbor, MI

Oct 2017

Observing Mass-Transfer in Double White Dwarfs with LISA and Gaia

TALK AT 12TH EDOARDO AMALDI CONFERENCE ON GRAVITATIONAL WAVES

Pasadena, CA

July 2017

Distinguishing Between Formation Channels for Binary Black Holes with LISA

POSTER SESSION AT 229TH MEETING OF THE AAS

Grapevine, TX

Jan. 2017

Distinguishing Between Formation Channels for Binary Black Holes with LISA

POSTER SESSION AT 11TH INTERNATIONAL LISA SYMPOSIUM

Zurich, SWITZERLAND

Aug. 2016

Variance in binary stellar population synthesis

TALK AT APS APRIL MEETING

Salt Lake City, UT

April 2016

Exploring galactic binary population variance with population synthesis

TALK AT MIDWEST RELATIVITY MEETING

Evanston, IL

Oct. 2015

Probing the Milky Way electron density using multi-messenger astronomy

TALK AT APS APRIL MEETING

Baltimore, MD

April 2015

Rapid Monte Carlo Simulation of Gravitational Wave Galaxies

POSTER SESSION AT 225TH MEETING OF THE AAS

Seattle, WA

Jan. 2015

Background Sky Variability for Multi-Messenger Follow-up Surveys

POSTER SESSION AT 219TH MEETING OF THE AAS

Austin, TX

Jan. 2012

Mentoring

Julianne Cronin

SIMULATING POPULATIONS OF OVER-CONTACT M DWARF BINARIES OBSERVABLE BY LISA

Undergraduate researcher; Present

Amia Ross

SIMULATING POPULATIONS OF DOUBLE NEUTRON STAR BINARIES OBSERVABLE BY LISA AND LIGO

High school intern; Summer 2017

Michael Bueno

SIMULATING POPULATIONS OF DOUBLE WHITE DWARF BINARIES OBSERVABLE BY LISA AND GAIA

REU student; Summer 2016

Service and Outreach

Referee for The Astrophysical Journal

CIERA Astronomer Evenings

FOUNDER AND LEAD ORGANIZER

Dearborn Observatory

Jan. 2016 - PRESENT

Astronomy on Tap - Chicago

FOUNDING MEMBER AND PRESENTER

Chicagoland area, IL

March 2016 - PRESENT

Astronomy Conversations

MONTHLY VISIT TO ADLER'S SPACE VISUALIZATION LAB FOR CONVERSATIONS WITH PLANETARIUM VISITORS

Adler Planetarium

March 2016 - PRESENT

General Science Outreach and Education

PARTICIPANT

2010-Present

- I'm committed to sharing the work that I do with the public and have interacted with over 1500 people at more than 15 events across the Greater Chicagoland and Salt Lake City areas; I'm happy to provide more details on request

Experience

RESEARCH

Graduate Research Assistant

CIERA, NORTHWESTERN UNIVERSITY

Evanston, IL

June 2013 - Present

- Monte Carlo simulations of compact binary populations
- Predicting gravitational wave source catalogs for LISA

Undergraduate Research Assistant

UTAH STATE UNIVERSITY

- Characterizing sky brightness fluctuations for optical follow up of gravitational wave events
- Observation the precession of the inner Jovian moons as a probe of general relativity

Logan, UT
Aug 2010 - June 2012

TEACHING

Graduate Teaching Fellow

NORTHWESTERN/LAKE VIEW HIGH SCHOOL

Creating lesson plans designed to bring computational thinking to an astronomy class at Chicago's oldest public high school.

Chicago, IL
2017-2018

Guest Lectures

NORTHWESTERN UNIVERSITY

- May 25, 2017: Introduction to gravitational waves for upper division undergraduate astronomy course (Astron 331)
- Nov. 11, 2016: Overview of the atomic model for introductory, concept-based physics course (Phys 103)

Evanston, IL
2016-2017

Graduate Teaching Assistant: General Physics and Astronomy Labs

UNIVERSITY OF GEORGIA

Athens, GA
Aug. 2012 - May 2013

Undergraduate Teaching Assistant: General Physics and Astronomy Labs

UTAH STATE UNIVERSITY

Logan, UT
Aug. 2010 - Jan. 2012

References

Shane L. Larson

CIERA/PHYSICS AND ASTRONOMY

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Vicky Kalogera

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Jeffery C. Livas

GRAVITATIONAL ASTROPHYSICS LAB

NASA/GSFC

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