

# Katelyn Breivik

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

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## Education

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

## Publications

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

## Honors & Awards

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

## Invited Seminars and Workshops

<b>The Architecture of LISA Science Analysis: Imagining the Future</b>	Pasadena, CA
WORKSHOP AT W. M. KECK INSTITUTE FOR SPACE STUDIES	Scheduled, January 16-19, 2018
<b>Exploring compact binary astrophysics with multi-messenger astronomy</b>	Pasadena, CA
TAPIR SEMINAR AT CALTECH	Scheduled, December 1, 2017
<b>Exploring compact binary astrophysics with multi-messenger astronomy</b>	New York City, NY
ASTRO SEMINAR AT COLUMBIA	Scheduled, November 16, 2017
<b>Exploring compact binary astrophysics with multi-messenger astronomy</b>	New York City, NY
ASTRO SEMINAR AT AMNH	Scheduled, November 14, 2017
<b>Exploring stellar-mass compact binary astrophysics with LISA</b>	Milwaukee, WI
CGCA SEMINAR AT UW MILWAUKEE	June 2, 2017

## Contributed Presentations

<b>Revealing the Milky Way’s black hole population with Gaia</b>	Ann Arbor, MI
TALK AT 27TH MIDWEST RELATIVITY MEETING	Oct 2017
<b>Observing Mass-Transfer in Double White Dwarfs with LISA and Gaia</b>	Pasadena, CA
TALK AT 12TH EDOARDO AMALDI CONFERENCE ON GRAVITATIONAL WAVES	July 2017
<b>Distinguishing Between Formation Channels for Binary Black Holes with LISA</b>	Grapevine, TX
POSTER SESSION AT 229TH MEETING OF THE AAS	Jan. 2017
<b>Distinguishing Between Formation Channels for Binary Black Holes with LISA</b>	Zurich, SWI
POSTER SESSION AT 11TH INTERNATIONAL LISA SYMPOSIUM	Aug. 2016

## Variance in binary stellar population synthesis

TALK AT APS APRIL MEETING

## Exploring galactic binary population variance with population synthesis

TALK AT MIDWEST RELATIVITY MEETING

## Probing the Milky Way electron density using multi-messenger astronomy

TALK AT APS APRIL MEETING

## Rapid Monte Carlo Simulation of Gravitational Wave Galaxies

POSTER SESSION AT 225TH MEETING OF THE AAS

## Background Sky Variability for Multi-Messenger Follow-up Surveys

POSTER SESSION AT 219TH MEETING OF THE AAS

Salt Lake City, UT

April 2016

Evanston, IL

Oct. 2015

Baltimore, MD

April 2015

Seattle, WA

Jan. 2015

Austin, TX

Jan. 2012

## Service and Outreach

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### CIERA Astronomer Evenings

FOUNDER AND LEAD ORGANIZER

### Astronomy on Tap - Chicago

FOUNDING MEMBER AND PRESENTER

### Astronomy Conversations

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

### General Science Outreach and Education

PARTICIPANT

- 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

Dearborn Observatory

Jan. 2016 - PRESENT

Chicagoland area, IL

March 2016 - PRESENT

Adler Planetarium

March 2016 - PRESENT

2010-Present

## Experience

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### RESEARCH

#### Graduate Research Assistant

CIERA, NORTHWESTERN UNIVERSITY

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

Evanston, IL

June 2013 - Present

#### 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

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### Shane L. Larson

CIERA/PHYSICS AND ASTRONOMY

NORTHWESTERN UNIVERSITY

shane.larson@northwestern.edu

### Vicky Kalogera

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### Jeffery C. Livas

GRAVITATIONAL ASTROPHYSICS LAB

NASA/GSFC

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