Gravitational Wave Astronomy at the University of Washington Bothell

Joey Shapiro Key

for the UWB Gravitational Wave Astronomy group

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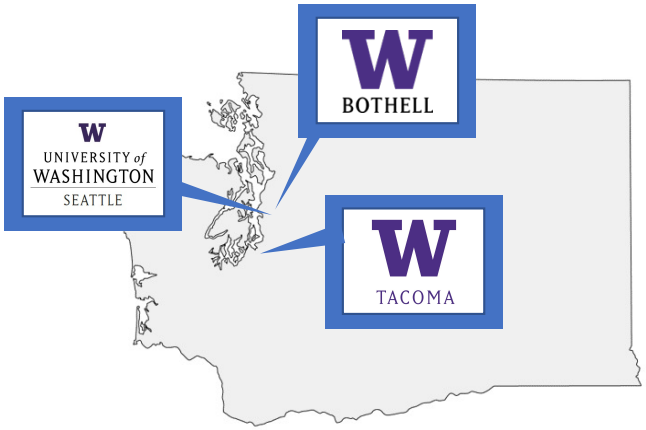
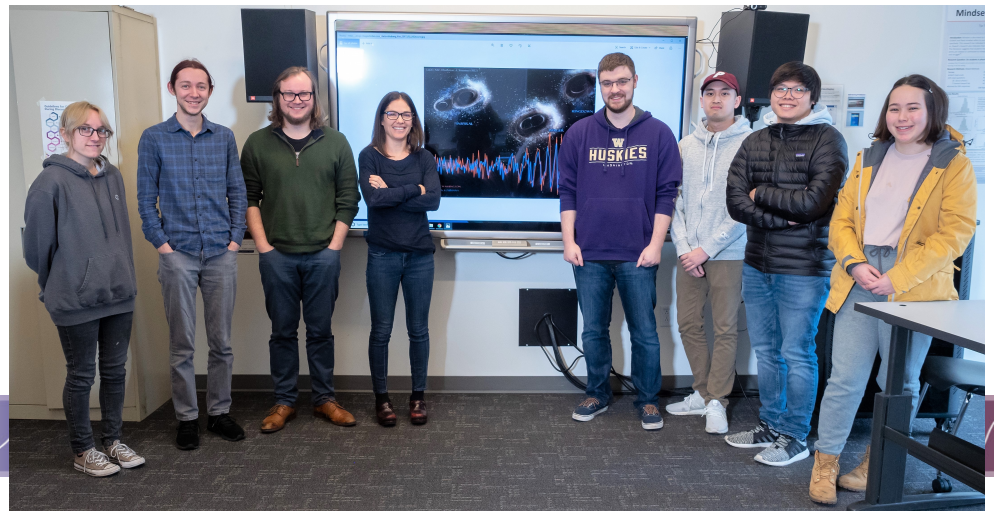
University of Washington system: UW Seattle, UW Bothell, UW Tacoma

UWB School of STEM

Division of Physical Sciences

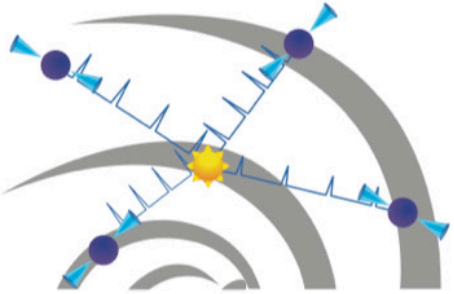


Gravitational wave astronomy group

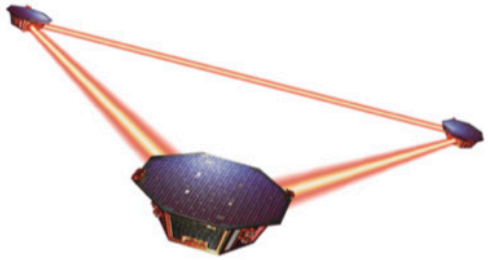


Gravitational Wave Observatories

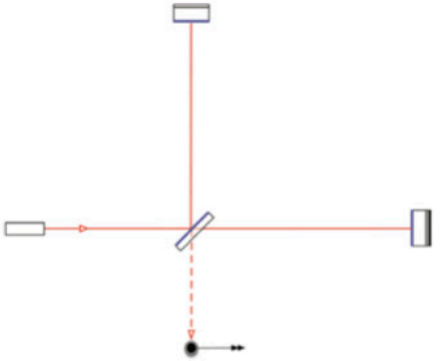
NANOGrav

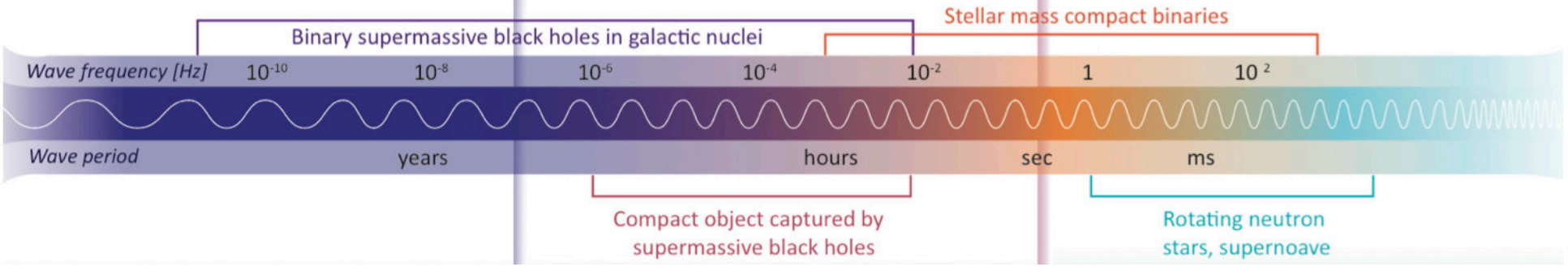


LISA CONSORTIUM



LIGO





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LIGO Data Analysis

Continuous Wave Detector Characterization

Ansel Neunzert with Maria Notario, AuDuyen Trinh, Beth Gallatin, Myrla Phillippe

-> noise characterization for continuous wave searches

Numerical Relativity

Luisa Buchman with Andrew Evans, Tim Kostersitz

-> waveforms improvement for compact binary coalescences by addressing spurious reflections from the outer boundary

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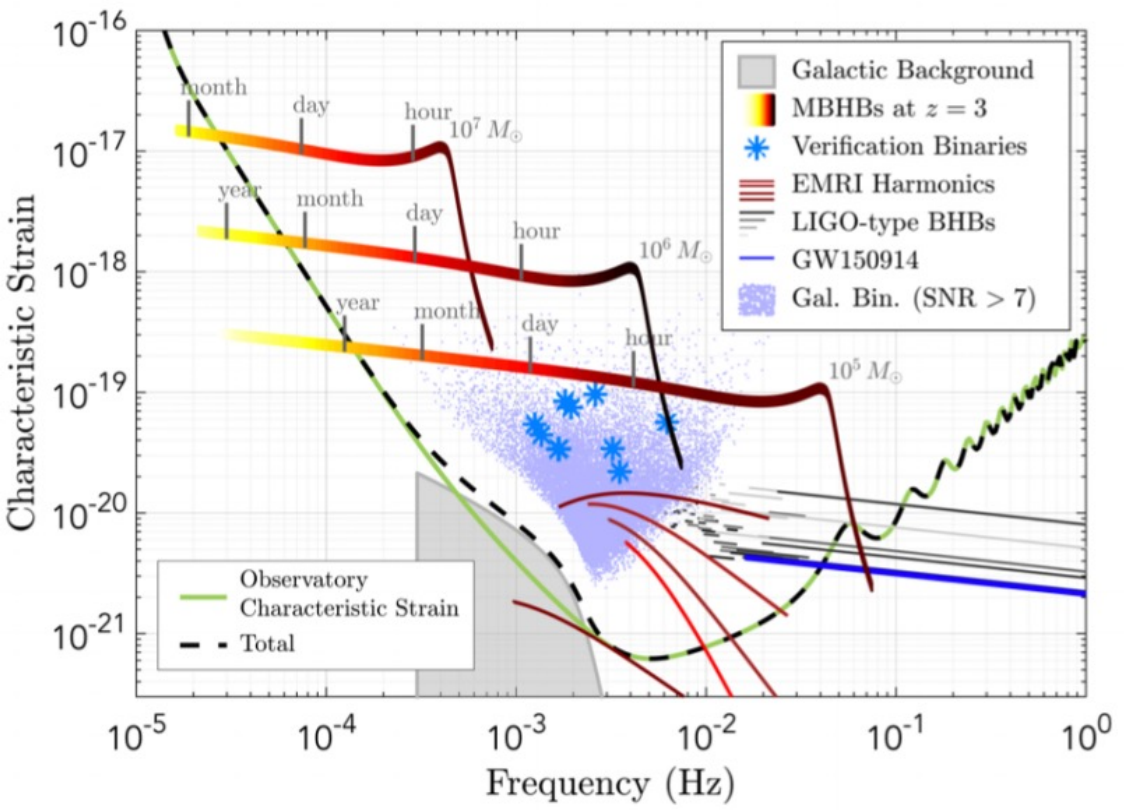
LISA Data Analysis



LISA proposal in response to the ESA call for L3 mission concepts, arXiv:1702.00786.

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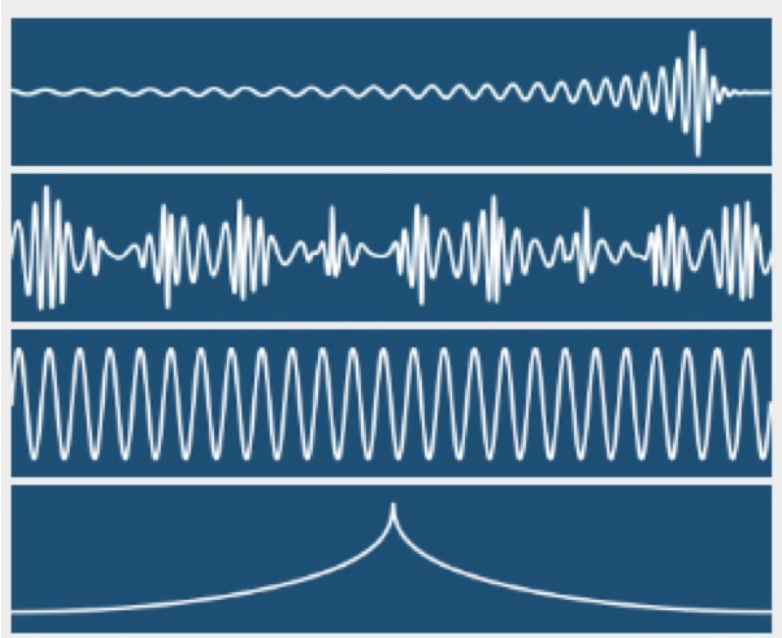
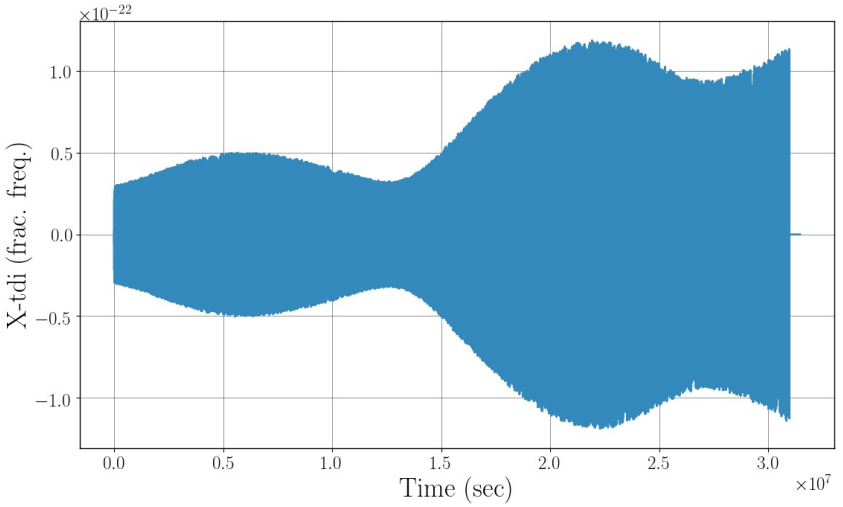
LISA Data Challenges (LDC)





https://lisa-ldc.lal.in2p3.fr

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LISA Data Challenges (LDC)

Galactic Binaries

Tyson Littenberg with Kyle Gersbach

-> parallelization of the LISA galactic binary search GBMCMC

Extreme Mass Ratio Inspirals (EMRIs)

Joey Shapiro Key with Kaia Smith, August Muller

-> identification and characterization of EMRI signals in the LDC

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NANOGrav Data Analysis

Pulsar Noise Modeling

Jeff Hazboun with Christine Ye

-> advanced Bayesian pulsar noise models

Gravitational Wave Detection

Jeff Hazboun

-> *The NANOGrav 12.5 yr Data Set: Search for an Isotropic Stochastic Gravitational-wave Background*, 2020, Astrophys. J. Letters 905, 2

-> *Common-spectrum process versus cross-correlation for gravitational-wave searches using pulsar timing arrays*, 2021, Phys. Rev. D 103, 063027

-> *Model Dependence of Bayesian Gravitational-Wave Background Statistics for Pulsar Timing Arrays*, arXiv:2009.05143

Education and Public Outreach

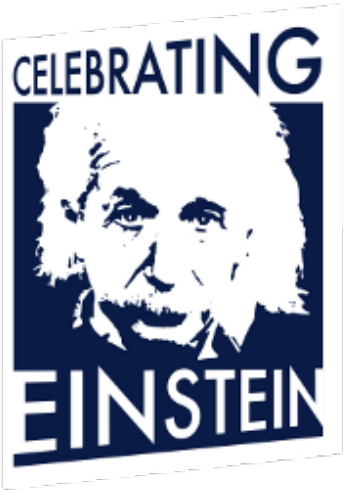
New NSF Physics REU at UWB

uwb.edu/physics/reu

2020 fully online [10 students]

2021 hybrid [23 students]

SPOT
STEM Public Outreach Team



EINSTEIN'S GRAVITY PLAYLIST