Gravitational Wave Astronomy at the University of Washington Bothell

Joey Shapiro Key

for the UWB Gravitational Wave Astronomy group

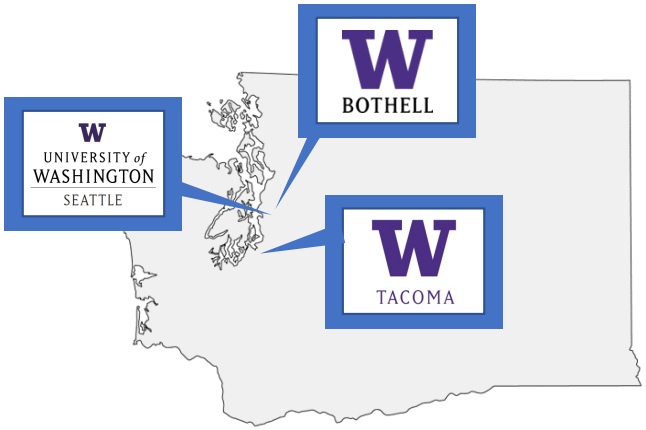
LIGO-G2301196

BOTHELL

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

UWB School of STEM

Division of Physical Sciences



Gravitational wave astronomy group

Luisa Buchman
Affiliate Assistant Prof

→ **WSU**

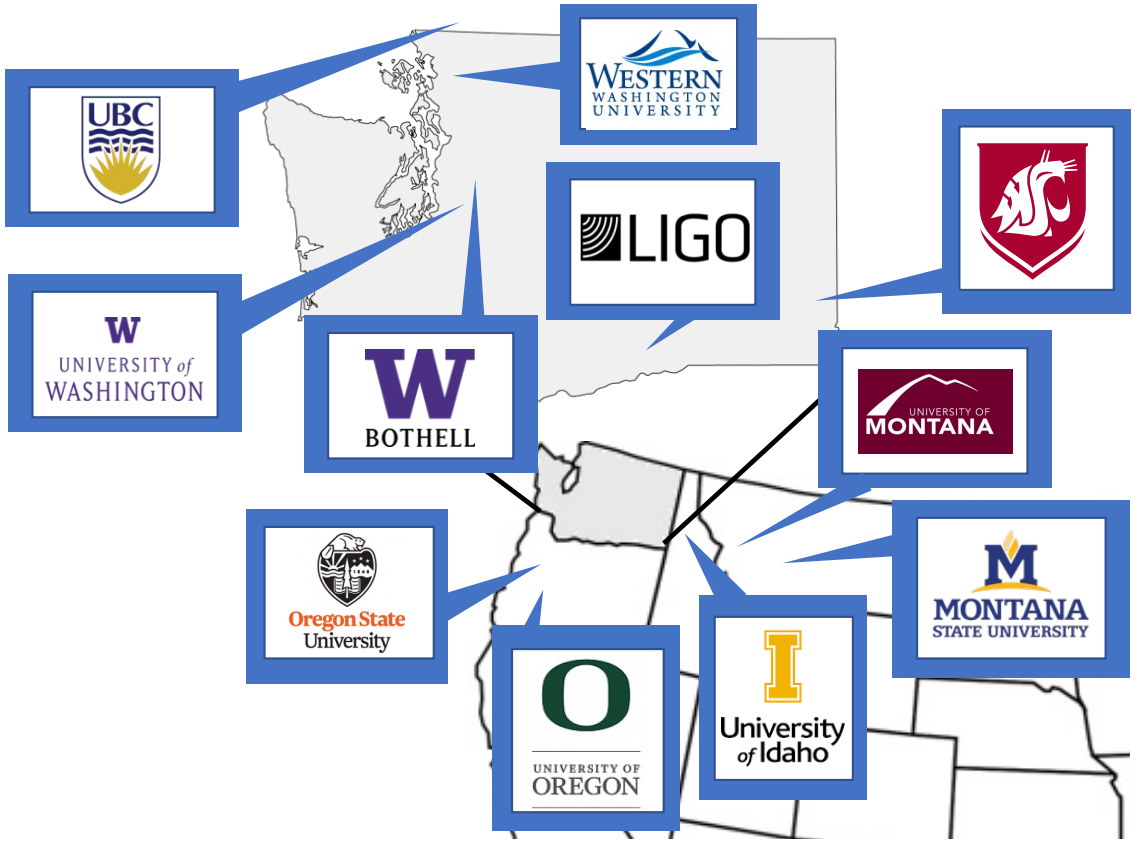
Jeff Hazboun
NANOGrav postdoc

→ **OSU**

Ansel Neunzert
LIGO postdoc

→ **LHO**

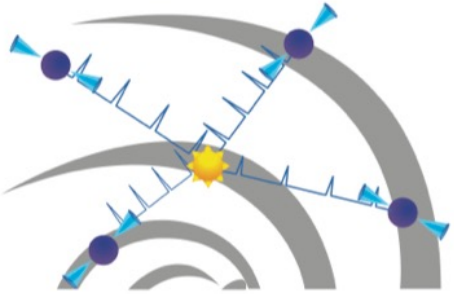
Gravitational Wave Astronomy Northwest



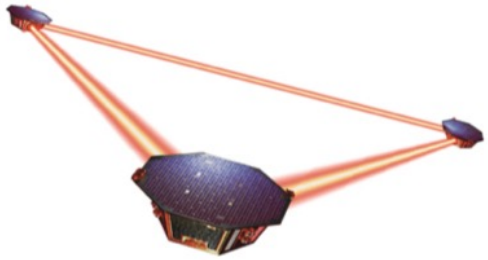
- LIGO WA at LHO June 2018
- GWANW at LHO June 2019
- GWANW on Zoom June 2020
- GWANW on Zoom June 2021
- GWANW at LHO June 2022
- **GWANW at LHO June 2023**

Gravitational Wave Observatories

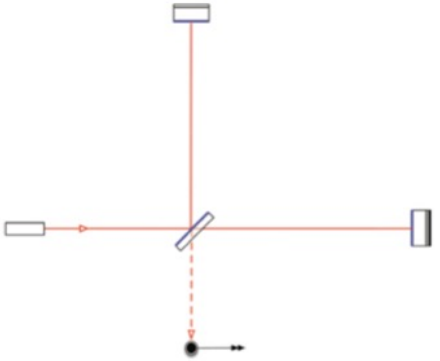
NANOGrav

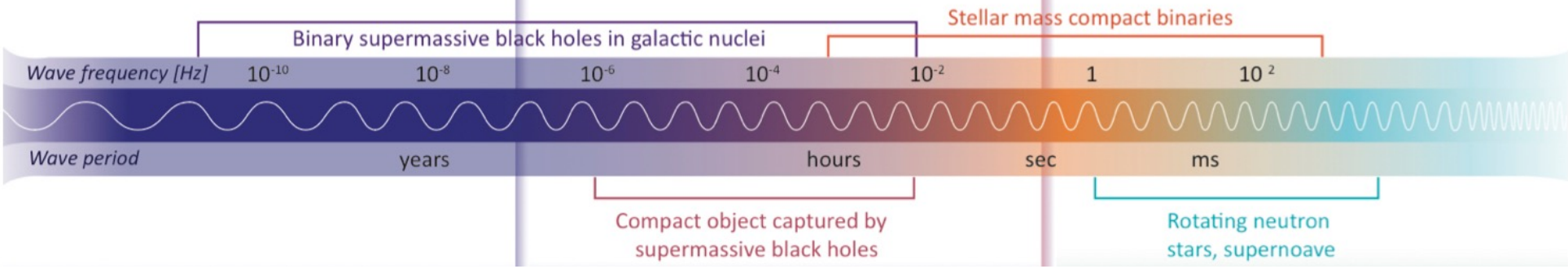


LISA CONSORTIUM



LIGO





BOTHELL

LIGO Data Analysis

Continuous Wave Detector Characterization

Ansel Neunzert (LHO) with research students

-> noise characterization and tools for continuous wave searches

see GWANW student talk:

Clustering spectral noise to improve continuous gravitational wave detector characterization – Abby Wang and Athena Baches

LISA Data Analysis

Sabbatical at UC Santa Cruz

LISA sources in the galactic center

LISA Data Challenges (LDC)

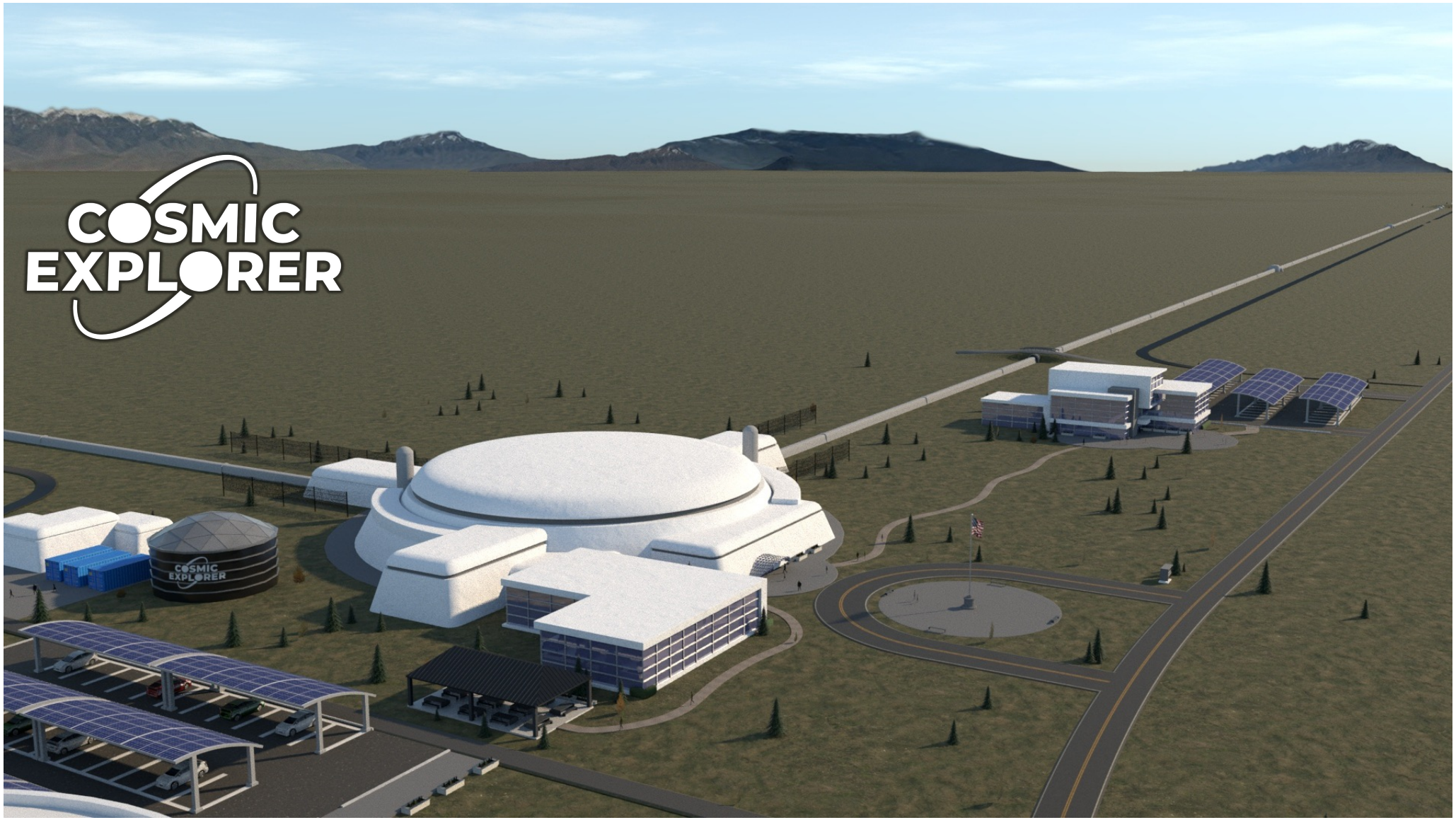
https://lisa-ldc.lal.in2p3.fr

Global LISA Analysis Software Suite (GLASS)

Galactic Binary MCMC (GBMCMC)

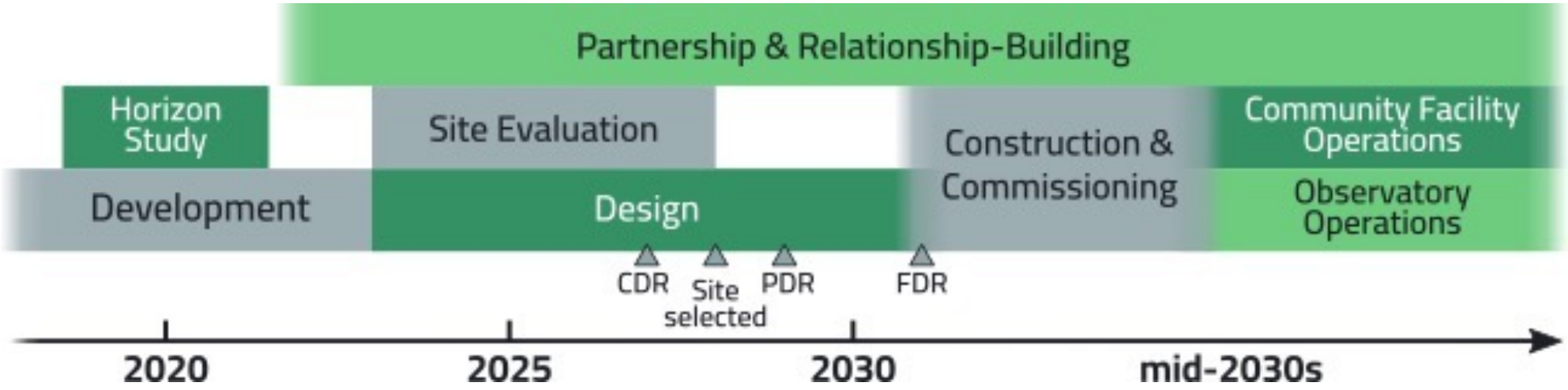
see GWANW student talk:

Extreme Mass-Ratio Inspiral (EMRI) Signals in LISA Data – August Muller


COSMIC
EXPLORER
COSMIC
EXPLORER

Conceptual Design

funded by NSF 2023-2026 with UW subaward from MIT



Education and Public Outreach

NSF Physics REU at UWB
uwb.edu/physics/reu
2020 fully online [10 students]
2021 hybrid [23 students]
2022 at UWB [24 students]

Sloan Foundation REU with Heritage University
uwb.edu/physics/heritage-reu
2022 at LHO [2 students]
2022 at UWB [9 students]

LIGO Spectra Super Special translation to Spanish and Blackfoot