CAN LISA HEAR THIS?

A LISA OBSERVER TOOL

Quentin Baghi, Laura McDonald, Ann Hornschemeier, Ira Thorpe, Antoine Petiteau, et al...

Adding LISA to Your Astronomy Toolbox - AAS Meeting - January 6th, 2019 - Seattle, Washington

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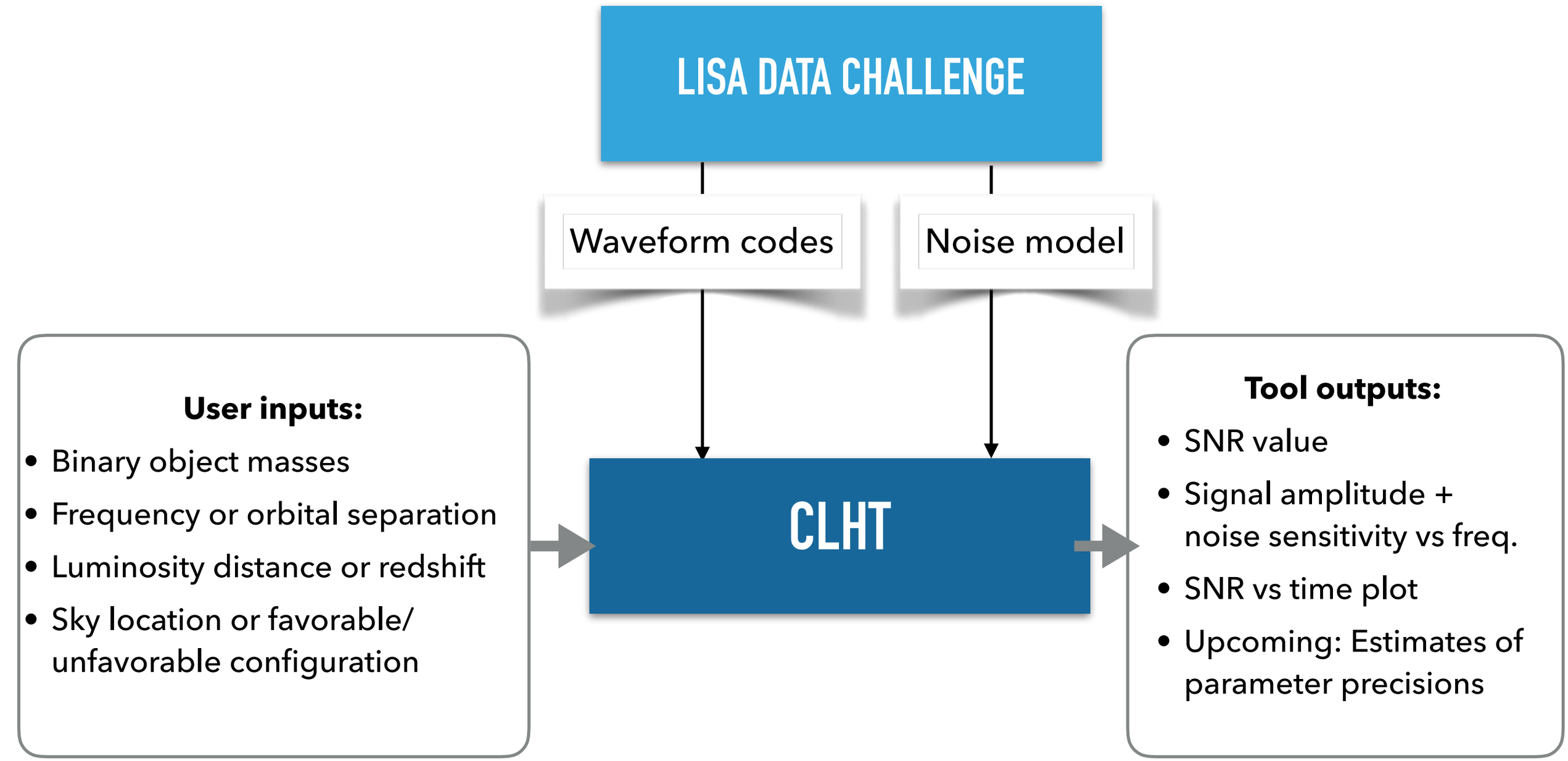

FEATURES AND DEVELOPMENTS

- **Particularities of CLHT:**
  - Directly works in TDI domain (this is what we will measure): plots GW amplitude spectrum and integrated noise level
  - No sky-averaged answers: possibility to give outputs for chosen sky location, or favorable/ unfavorable configurations (intervals)
- **Public URL in construction:**
  - https://heasarc.gsfc.nasa.gov/wsgi-scripts/lmmcdona/start.wsgi/ (for now, will be changed)
  - Needs to be beta-tested
- **Coming soon:**
  - Estimates of parameter uncertainties
  - EMRI sources
  - Interactive plotting

EXAMPLE FOR A GALACTIC BINARY

Results

Lisa Ob

Getting Started
https://www.mozilla.org/en-US/firefox/central/

Source parameters

Source Parameters

Intrinsic Mass of Object 1 (solar mass)	0.45	Intrinsic Mass of Object 2 (solar mass)	0.7
Luminosity Distance (Mpc)	0.0001	or Redshift	2.238e-8
Orbital Period (sec)	1000	or Separation Distance (km)	1.569e+5

Sky location and polarization

Sky Location and Orientation

Source Inclination angle (deg): 0

Wave polarization angle (deg): 0

- ○ User Specified
  - Longitude: 0.0 Latitude: 0.0
- ◉ Favorable
- ○ Unfavorable

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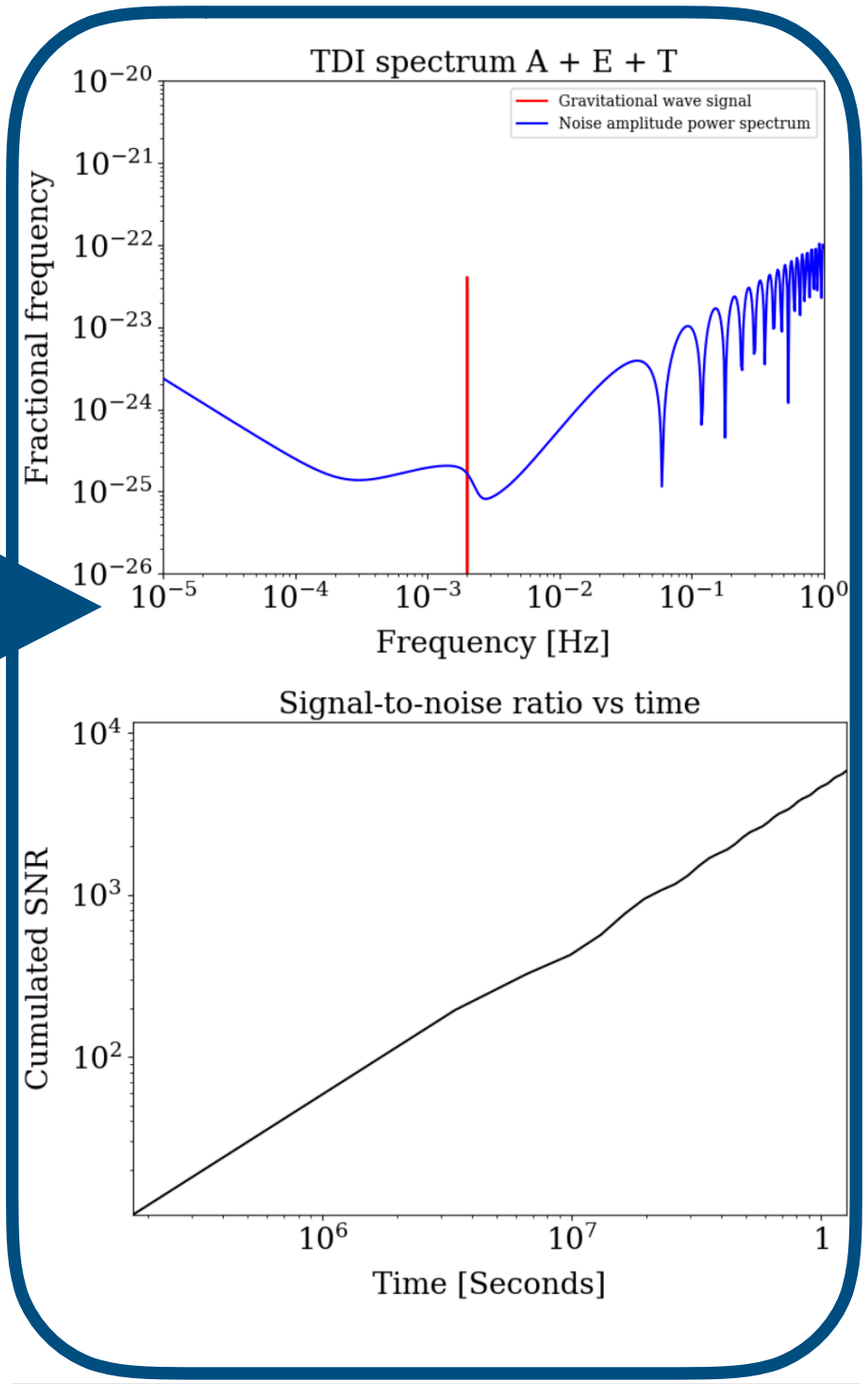

Download Plotted Data

EXAMPLE FOR A MASSIVE BLACK HOLE BINARY

Lisa Observer Tool

Source Parameters

Intrinsic Mass of Object 1 (solar mass)	1e6	Intrinsic Mass of Object 2 (solar mass)	2e6
Luminosity Distance (Mpc)	1000	or Redshift	0.1965
Orbital Period (sec)	1000.0000	or Separation Distance (km)	21605171.5802

Sky Location and Orientation

Source Inclination angle (deg): 0

Wave polarization angle (deg): 0

- ○ User Specified
  - Longitude: 0.0 Latitude: 0.0
- ◉ Favorable
- ○ Unfavorable

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