ID de Contribution: **24** Type: **In person talk**

LISA Data Challenge for the Galaxy

mercredi 23 novembre 2022 15:00 (30 minutes)

The Laser Interferometer Space Antenna will open a window to gravitational waves (GW) between 0.1 mHz and 1 Hz. The instrument will monitor the entire sky and observe a variety of overlapping signals. GWs from the population ultra compact binaries, numbering millions in our
Galaxy, are predicted to dominate the milli-Hertz frequency band. Galactic binaries are millions of years from merger, and consequently their signals will simultaneously persist for the duration of the LISA mission. This wealth of sources will contribute to an unresolved
foreground which will be the main source of noise between 1-3 milli-Hertz. However, a few tens of thousands are expected to be resolvable. Extracting these overlapping galactic signals is a central challenge in LISA data analysis. I will give a brief introduction to the GBMCMC pipeline applied to the global fit of Galactic white dwarf binaries. Then we'll review the application of GBMCMC to the Radler galaxy, from the LISA Data Challenges, and the production of catalog data. We'll explore the post-analysis and science of the resulting catalog and quantify the efficacy of the pipeline search. And finally, I'll discuss my ongoing work to use machine learning to develop a new method for transforming MCMC samples into catalog data, namely converting an L2 data product to an L3 product for the end user.

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