ID de Contribution: **15** Type: **In person talk**

FastEMRIWaveforms: New tools for millihertz gravitational-wave data analysis

vendredi 25 novembre 2022 09:45 (15 minutes)

The observations of gravitational wave signals from extreme-mass-ratio inspirals (EMRIs) have a huge scientific potential for the LISA mission because the system's parameters will be constrained to unprecedented precision. However, high precision comes with new challenges. EMRIs are the only sources that combine the challenges of strong-field complexity with that of long-lived signals. The rapid generation of such signals is hindered by computing the $10^3 - 10^5$ harmonic modes in a fully relativistic waveform. In this talk, I will present the FastEMRIWaveforms (FEW) package, a collection of tools to build and analyze EMRI waveforms. I will discuss the construction of the overall framework; constituent modules; and the general methods used to accelerate EMRI waveforms, such as the exploitation of graphics processing units (GPUs). Finally, I will show that the FEW package enables the generation of fully relativistic waveforms on timescales useful for direct implementation in LISA data analysis algorithms.

Auteurs principaux: SPERI, Lorenzo (Max Planck Institute for Gravitational physics (Albert Einstein Institute, AEI Potsdam)); KATZ, Michael (AEI)

Orateur: SPERI, Lorenzo (Max Planck Institute for Gravitational physics (Albert Einstein Institute, AEI Potsdam))

Classification de Session: Conference session 4