Contribution ID : **38**   Type : **not specified**

Hierarchical search EMRI signals via matched filtering

Sunday, 19 October 2025 15:00 (20)

The GW of EMRIs can signal many new physics so its data analysis is an important task for space borne GW mission. However its high dimensional and wide prior parameter space, needle-in-haystack signal morphology, as well as the characteristics of multiple harmonics superposition hinder the development of its data analysis, especially computational intensive matched filtering. In this report, we will introduce our reduced dimensionality likelihoods, particle swarm optimizer, and progress of the hierarchical search strategy to overcome the aforementioned challenges, and compare the performace with the latest related works from LISA.

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Session Classification :   Parallel-2