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## A full stellar mass inspiral search: Building the road to the EMRI search

Monday 23 June 2025 16:00 (30 minutes)

The search for EMRIs is hindered by two main problems, the extremely compact posterior and the degenerate parameter space with numerous secondary peaks. This talk addresses the former by demonstrating a complete search pipeline for stellar-mass binary inspirals; these systems exhibit similarly compact posteriors. While the stellar-origin binaries are an important LISA source in their own right, these signals are also a good testing ground for the development of EMRI search algorithms. We present results from the first full search pipeline for stellar mass binary inspirals in LISA data, which is also capable of dealing with data gaps and cyclo-stationary noise. The results of applying this search to the LISA data challenge "Yorsh" are presented, with associated false alarm probabilities for each detected source. A time-frequency approach is used to significantly reduce the cost of the search; full searches over parameter space can be completed within a week. I will also discuss how this approach can be adapted for the EMRI search.

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