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Roadmap for the Inclusion of Extreme Mass Ratio Inspirals in the LISA Global Fit

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Extreme Mass Ratio Inspirals (EMRIs) present one of the key challenges in the data analysis of future data from the Laser Interferometer Space Antenna (LISA). Their long signal duration and the large number of harmonics make the search and parameter estimation of these sources particularly challenging. There are two main challenges associated with EMRI data analysis: the size of the posterior is several orders of magnitude smaller than the size of the prior search, and the search surface adopting standard detection statistics presents several local maxima, making the identification of EMRIs especially difficult.

I will discuss current strategies for overcoming these problems, review the latest results from machine learning methods, semi-coherent searches, and phenomenological approaches. Additionally, I will outline the timeline and roadmap for successfully including EMRIs in the global fit of LISA, aiming to realize the rich scientific potential of these sources.

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