

Abstract Submitted
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Choosing the Initial LISA Orbital Configuration¹ KARAN JANI, LEE SAMUEL FINN, Penn State University, MATHEW BENACQUISTA, University of Texas at Brownsville — The Laser Interferometer Space Antenna (LISA) mission proposes to detect gravitational radiation by synthesizing one or more interferometric gravitational wave detectors from fringe velocity measurements generated by changes in the light travel time between three spacecraft in a special set of drag-free, circumsolar orbits. Once the spacecraft are set in their orbits the orientation of the LISA interferometers at any further time is fixed by the Kepler Laws and the initial orientation of the spacecraft constellation. The initial orientation does not affect those locations on the sky where LISA has greatest sensitivity to gravitational waves; however, it does affect those locations where nulls in the LISA response to gravitational waves fall. By artful choice of the LISA initial orientation we can thus choose to optimize LISA's sensitivity to sources or groups of sources whose location (eg., the galactic center or plane, nearby globular cluster, etc.) may be known in advance.

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Karan Jani
Penn State University

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