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**Technology Development for LISA: the Telescope.** JEFFREY LIVAS, RYAN DEROSA, RITVA KESKI-KUHA, JOHN LEHAN, SHANNON SANKAR, NASA Goddard Space Flight Center — LISA, the planned space-based gravitational wave observatory to complement the LIGO ground-based gravitational wave network of observatories, will extend the current capabilities to frequencies in the range of 0.1 mHz to 0.1 Hz, and the masses of binary black hole mergers that may be observed from the current  $\sim 10$  solar mass pairs to  $\sim 10 M$  solar masses. Although the nominal launch date for LISA is in the early 2030's, current planning and technology development for the mission is focused on the much more immediate milestone of mission adoption, currently scheduled for the end of 2022. This gate marks the transition from the Project formulation phase into implementation, with a nominal lifecycle time to launch of  $\sim 8.5$  years. An optical telescope is required to transmit laser beams between pairs of three widely spaced spacecraft arranged as an equilateral triangle to form a precision heterodyne interferometry metrology system, and must satisfy requirements that include a high degree of dimensional stability and careful pupil-plane imaging to avoid coupling angular jitter to displacement noise. We will describe the application, requirements, design, and current status of the technology development effort on the telescope.

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