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Motivated by LISA: Current Progress on the Development Of Space-flight Qualified Optical Hardware[1] DANIEL HILLSBERRY, ANDREW CHILTON, GUIDO MUELLER, JOHN CONKLIN, University of Florida — The Laser Interferometer Space Antenna (LISA) requires extremely precise and stable optical hardware to achieve a sufficient SNR. The effort to redesign and modularize the LISA optical bench for reduced cost and complexity has led to some interesting and novel hardware concepts. This talk is about the ongoing development and testing of a modular and integrable optics system built from conventional engineering materials while meeting LISA like stability levels. This system is designed for applications such as interferometry, metrology, communication and will include: monolithic piezo actuated steerable optic mounts, optical bench, and a metal-to-glass structural interface. A compact and low-cost shaker table for space-flight qualification tests has also been in development. This hardware could bring preliminary flight testing in-house to save time and money compared to off sight evaluation. The shaker table will give other institutions the opportunity to enjoy more cost effective and partially in-house flight qualification. Motivated by space science metrology needs the optical system is designed to be compact, low cost, and highly configurable which makes it relevant to a diverse range of applications beyond LISA which may require such scientific instrumentation.

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