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Laser interferometry for next generation satellite gravimetry

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The use of precision laser interferometry in the next generation of satellite gravity field missions, including inter-satellite ranging and laser gravity gradiometry, will be discussed. Much of the interferometer technology developed for the Laser Interferometer Space Antenna (LISA), a space-based gravitational wave detector and its technology demonstrator, LISA Pathfinder, is relevant to such a mission - for example laser based heterodyne interferometry for measuring the fluctuations of the distance between two satellites or between two test masses within a single satellite. The status of the development of interferometry for future satellite gravimetry missions, including laboratory experiments, at the Albert Einstein Institute Hannover will be presented.