# SAGITTARIUS: A Space Gravitational Wave Experiment

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ABSTRACT: The SAGITTARIUS mission consists of six microsatellites in 600,000 KTn Earth orbit, two satellites at each of the vertices of an equilateral triangle. 'l'he satellites are drag-free at the $10^{-15}$ m $s^{-2}$ $Hz^{-1/2}$ level and track each other with lasers with 10pm phase accuracy. The geometry of the orbits allows two independent Michelson interferometers to be setup with arm lengths of $10^{9}$ m, With the resultant $10^{-20}$ $Hz^{-1/2}$ strain sensitivity, SAGITTARIUS will see gravitational waves from known binary stars, from a presumed population of compact binaries in the Galaxy, and from massive black hole events (creation, hierarchical merging, or coalescence in galaxy mergers) at redshifts greater than $z = 3$.