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The expected role of GAIA for asteroid science

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According to current plans of ESA, GAIA will be launched in 2011. With a systematic survey of the all sky down to magnitude V = 20, GAIA will provide a fundamental contribution in practically all fields of modern Astrophysics. In particular, GAIA will be also a major milestone in the history of asteroid science. Based on its unprecedented astrometric performances, complemented by spectroscopic and photometric capabilities, GAIA will be able to measure the masses of about 100 asteroids. It will directly measure sizes of about 1000 objects, will derive spin properties and overall shapes of about 10,000 objects, and will derive much improved orbits and taxonomic classification of hundreds of thousands asteroids. The post-GAIA era in asteroid science will be one in which we will know average densities of about 100 objects belonging to all the major taxonomic classes, we will have a much more precise knowledge of the inventory and size and spin distributions of the population, of the distribution of taxonomic classes as a function of heliocentric distance, and of the dynamical and physical properties of dynamical families.