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- Planetary Defense – Recent Progress & Plans
- NEO Discovery
- NEO Characterization
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**GAIA OBSERVATIONS OF ASTEROID AND POTENTIAL FOR NEA DISCOVERY  
AND CHARACTERIZATION**

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**ABSTRACT**

The Gaia mission is operating in the Lagrangian point L2 since January 2014. Its two fields of view cross the ecliptic 6 times a day, and get precise astrometry, photometry and low-resolution spectroscopy of asteroids [1]. Over 5 years, Gaia will provide an homogeneous set of astrometric and spectro-photometric data concerning ~350,000 asteroids, mainly Main Belt and NEOs. Despite the limitation in magnitude ( $V \sim 20$ ) Gaia will help completing the census of the asteroid population, and will be an exception tool for better characterizing the impact risk represented by Potentially Hazardous Objects, thanks to its unprecedented astrometric accuracy.

As Gaia will also observe at rather low solar elongations, a potential for discovery of Atiras (Inner Earth Objects) exist. Discovery will trigger a network for the ground-based follow-up.

After commissioning and tuning of the software pipelines, the systematic processing of Solar System observations has started. Beside the alerts that are released on a regular base, data concerning NEA and Main Belt asteroids will be included in the First Intermediate Release (mid-2016).

The specific, peculiar properties of Gaia data (in terms of accuracy, error budget, time sampling...) will be mentioned with the goal of illustrating the requirements for their adequate exploitation by the community. The performances of Gaia, and its potential for the characterization of the NEO population will be illustrated. We will also mention the impact of Gaia on the studies of the NEO source regions.

**References**

[1] Tanga, P., Mignard, F., 2012. The Solar System as seen by Gaia: The asteroids and their accuracy budget. *Planetary and Space Science* 73, 5–9.