

## **The Gaia catalogue second data release and its implications to optical observations of man-made Earth orbiting objects.**

The Gaia spacecraft was launched in December 2013 by the European Space Agency to produce a three-dimensional, dynamic map of objects within the Milky Way. Gaia's first year of data was released in September 2016. Common sources from the first data release have been combined with the Tycho-2 catalogue to provide a 5 parameter astrometric solution for approximately 2 million stars. The second Gaia data release is scheduled to come out in April 2018 and is expected to provide astrometry and photometry for more than 1 billion stars, a subset of which with a the full 6 parameter astrometric solution (adding radial velocity) and positional accuracy better than 0.002 arcsec (2 mas).

In addition to precise astrometry, a unique opportunity exists with the Gaia catalogue in its production of accurate, broadband photometry using the Gaia G filter. In the past, clear filters have been used by various groups to maximize likelihood of detection of dim man-made objects but these data were very difficult to calibrate. With the second release of the Gaia catalogue, a ground based system utilizing the G band filter will have access to 1.5 billion all-sky calibration sources down to an accuracy of 0.02 magnitudes or better. In this talk, we will discuss the advantages and practicalities of implementing the Gaia filters and catalogue into data pipelines designed for optical observations of man-made objects.