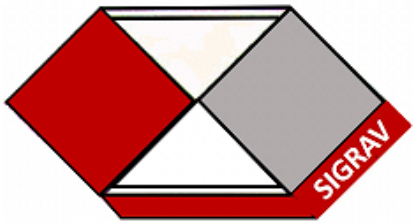

Contribution ID: **53** Type: **not specified**

Gravity with Gaia

Tuesday, 7 September 2021 14:00 (30 minutes)

The ESA Gaia mission measures directly positions and velocities of more than 1.5 billion stars to create the largest, most precise 6D kinematical map of the Milky Way (MW). High accurate measurements in space force fundamental astronomy to move from the "classical" paradigm, responding to Newton's gravity, to that of Einstein's General Relativity (GR). Then, GR must be at the very core of the Gaia data reduction to guarantee the quality of the scientific products that span from the fraction-of-a-parsec scale of the Solar System to the two tens of kpc of that of the MW to comprise also GR tests. Indeed, any reconstruction of our Galaxy should be consistent with the relativistic-compliant astrometry delivered by Gaia to assure a coherent local cosmological laboratory for the predictions of the Lambda-CDM model at z=0. Besides that, a GR treatment of the local line-of-sight allows to devise an astrometric antenna for detecting with unmatched precision the GW incoming direction.

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