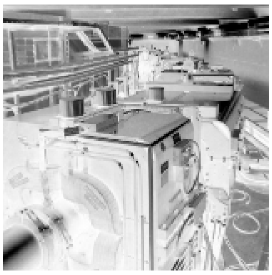

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Gravitation astrometric tests in the Solar System: the QVADIS collaboration goals

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High precision astrometry at the microarcsecond level is a promising tool for Fundamental Physics tests in the Solar system, reaching a sensitivity adequate to set stringent constraints on the competing theories of gravitation, including General Relativity, and on effects induced by quantum mechanics related phenomena.

In the latter case, it may evidence the gravitational properties of anti-matter by verification of some basic theoretical assumptions, e.g. the hypothesis that conventional and anti-matter may act in a repulsive way on each other, retaining the attractive interaction among homologous matter type particles.
Then, Quantum Vacuum might have gravitational effects due to polarisation of the matter-antimatter virtual particle pairs in an external gravitational field, since polarisation will act as an additional field.
In turn, this may induce an excess shift of the longitude of the pericenter in the orbit of a binary system, in particular located at large distance from the main local gravity source.
Assessments of the expected level on the trans-neptunian binary system UX25 was estimated by Hajdukovic (2014) to be about 0.23˜arcsec per orbit.
We discuss the verification of such effect by state-of-the-art or near-future astronomical infrastructures, either on ground or in orbit, evidencing its feasibility in a reasonable experimental framework.
The observation implications of effect discrimination from disturbances due to other physical reasons (e.g. object shape and structure) are reviewed.

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