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Title: *“Using the Sun-Earth Lagrange points for fundamental physics and space navigation”*

Abstract. The Lagrange points of the Sun-Earth system may be used as surveying points of a reference frame co-moving with the Earth around the Sun. Locating transponders in L1,L2,L4 and L5 would allow to measure the times of flight of electromagnetic signals traveling round on a closed (in the Lagrangian reference frame) path. The asymmetry between the times of flight of right- respectively left-handed signals could evidence the gravito-magnetic field of the Sun, i.e. a general relativistic effect of the angular momentum of the star. The expected time of flight difference is in the order of 10^{-13} s, well within the range of measurability by the present time metrology devices. Active periodic emitters in the mentioned points would also constitute beacons (“artificial pulsars”) for a Relativistic Positioning System for space navigation in the inner solar system. Crucial for these applications is the accurate description of the Lissajous orbits about L1 and L2 and of the libration motion around L4 and L5.