



Orbital Stellar Stereoscopic Observatory Project: Motivation and Autonomous Navigation in the Heliocentric Transfer and Operational Orbits

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Abstract. Orbital Stellar Stereoscopic Observatory (OStSO) project is designed for long-term fundamental investigations in astrometry, celestial mechanics, including the asteroid and comet hazard problem, stellar astronomy, and astrophysics. OStSO assumes placing two identical spacecrafts (SC) in the vicinity of L_4 and L_5 Lagrangian libration points of the “Sun – Earth+Moon” system. This configuration has novel features for 3D astronomical observations and monitoring of the solar system events and phenomena. Autonomous space navigation methods are critical for controlling the OStSO deployment, monitoring of the observatory baseline, and for the success of its scientific program. Traditional optical star and Sun sensors have been designed to fit the particular features of the orbital movements and pointing of the main instruments.

Keywords: space project, autonomous space navigation, space instruments, libration centers

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