Geophysical Research Abstracts
Vol. 21, EGU2019-6262, 2019
EGU General Assembly 2019

The developments of ground-satellite Laser Time Transfer in the mission of Chinese Space Station

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The mission of Chinese Space station is underway in China and the different type of clock systems will be carried and high stability and accuracy of time transfer is demanded. Laser Time Transfer (LTT) will be implemented between ground and Space Station and the LTT payload is being developed by Shanghai Astronomical Observatory (SHAO) with the time comparison single shot precision of 60ps, stability of less than 1ps @ 300s, and 1ps @ 1day. This paper will introduce the progress of LTT payload, including the design of the detector and timer, the optical design, testing results of the system stability and the future developments of this project.