Research on the Key Technologies of the Integrated System of Satellite-to-ground Laser Ranging Communication and Polarization Imaging Based on the 700mm Laser Ranging Telescope at Changchun Observation Station

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Laser communication and ranging technology has been gradually applied to the satellite-to-ground link because of the advantages of high precision, low energy consumption and high quality beam. Satellite laser communication technology is currently a popular project in the world. In order to benchmark the goal-oriented requirements of foreign "satellite link" system, we have also carried out the relevant research.This paper is based on the 700mm laser ranging telescope under construction at Changchun observation station. The main research work includes the research on the integrated system scheme of satellite-ground laser ranging communication and polarization imaging, the research on the 100G high-speed adaptive laser transmission system, the research on the phase method laser ranging technology, and the research on the polarization imaging technology of space targets.