

Space Debris Laser Ranging and Characteristic Analysis

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Human are living in a space era. The space activities are causing fast increasing space debris, which post great threats to space assets. Better understanding of the state of space debris is necessary for us to effectively analyze the collision risk to avoid it.

From different types of observational techniques, laser ranging is the one which can provide the most accurate data. For tens of years, laser ranging has been used to track satellite for different kinds of application. Nowadays, with the development of laser power and sensor capability, laser ranging for debris is becoming more and more widely implemented. While looking into the ranging data provided by high speed laser ranging, it is interesting that additional characteristic information which was once considered as noise are hiding in them.

This work present possible way to analyze the characteristic from laser ranging data with state of the art intelligent techniques.

Key words: Space Debris; Laser Ranging; Characteristic Analysis