

Deflection / Disruption Modeling & Testing

X-RAY IONIZATION AND ELECTROSTATIC INDUCTION IN SPACE DEBRIS

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ABSTRACT

Space debris has been causing damage to many spaceships and satellites. Remarkably, small space debris is difficult to be precisely detected and avoided. The protection system to save space technologies is indispensable. In a low earth orbit (LEO) in which fully occupied space debris is, the high energy X-ray from the sun can ionize and heat the space debris slowly orbiting around the earth. Elementary particle physics will concisely describe an ionization process in any substance in this work. The idea of deflecting the space objects by combining electrostatic induction and surface ionization by the X-ray from the sun will be proposed. After the ionization, the external electric field will be easier to split electric charges in the materials. The pendulum experiment can confirm electrostatic induction, which is tested in the low-pressure chamber when two electrodes for generating electric fields are attached at the lateral side of the chamber. The objects are made of composite materials, conductors, and glasses. The result shows that all of them swing back and forth except that the conductors only stay at rest because they discharge immediately, which is observed by the curve of the electron beam.

Comments:

(I would like to join as a virtual conference)