

16th IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Interactive Presentations - 16th IAA SYMPOSIUM ON SPACE DEBRIS (IP)

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PROTOTYPE DEVELOPMENT OF THE MEDUSA (MECHANISM OF ENTRAPMENT DEBRIS
USING SHAPE MEMORY ALLOY)

Abstract

In this interactive presentation we present the development process of the MEDUSA device. MEDUSA is an acronym for Mechanism of Entrapment Debris Using Shape memory Alloy, this device is designed as a small scale debris capturing mechanism used for Active Debris Removal (ADR) missions.

The structure of this presentation will start from a background introduction which addresses the deteriorating debris phenomenon in Low-Earth-Orbit (LEO). Then a list of system requirement of MEDUSA will be presented. Then we show the material selection of the MEDUSA device. After system requirements and material selection are done we demonstrate the design of how each material will be used to construct the system and hence the Mk-II and Mk-III prototype were made. Lastly, we will briefly discuss the test results of each prototype, due to time constraint a detailed presentation on vacuum tests and atmospheric test will be discussed in an oral presentation in the A6 session.