23rd IAA SYMPOSIUM ON SPACE DEBRIS (A6)
Interactive Presentations - 23rd IAA SYMPOSIUM ON SPACE DEBRIS (IP)

Author: Dr. Masaaki Kawamura
BULL Co., ltd., Japan

Mr. Yasuhito Uto
BULL Co., ltd., Japan
Dr. Yoshihiro Tsuruda
BULL Co., ltd., Japan
Mr. Koh Kamachi
BULL Co., ltd., Japan
Mr. Masakazu Koyanagi
BULL Co., ltd., Japan
Ms. Keiko Iso
BULL Co., ltd., Japan

INSTITUTIONALIZING PROACTIVE DEBRIS MITIGATION: POLICY AND TECHNOLOGICAL IMPERATIVES FOR EMBEDDING PMD (POST MISSION DISPOSAL) DEVICES IN ROCKET SYSTEMS

Abstract

The escalating accumulation of space debris poses a critical threat to the long-term sustainability of orbital operations, necessitating a shift from reactive mitigation to institutionalized proactive strategies. This study explores the integration of Post-Mission Disposal (PMD) devices into rocket systems as a policy-driven imperative for sustainable space governance. By embedding PMD technology at the launch stage, we aim to establish a systematic and scalable approach to debris prevention, ensuring compliance with emerging regulatory frameworks while minimizing financial and operational constraints. In pursuit of this objective, we are actively conducting a Feasibility Study with Arianespace S.A. (France) and Avio S.p.A (Italy) to assess the practical integration of PMD systems into commercial launch vehicles, paving the way for market adoption. As a startup supported by the Japanese government, we are committed to advancing pragmatic, industry-led solutions that align with global policy objectives and commercial viability. This presentation will outline the technological feasibility of PMD integration, the regulatory landscape shaping its adoption, and the collaborative pathways necessary to institutionalize proactive debris mitigation. By bridging policy and engineering innovation, we advocate for a structured framework that fosters sustainable orbital practices and reinforces international space governance.