

SPACE DEBRIS SYMPOSIUM (A6)  
Space Debris Removal Issues (5)

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A NOVEL APPROACH FOR ACTIVE DEBRIS REMOVAL – PERSPECTIVES FROM THE NEXT  
SPACE GENERATION**Abstract**

The long-term sustainability of outer space activities is threatened by the continuous increase in the population of derelict space objects. Recent studies have concluded that space debris mitigation, though necessary, cannot ensure the sustainability of space activities in the long-term and have recommended the active removal of space debris. This is particularly important in the congested and collision prone LEO region. From deorbiting kits and electrodynamic tethers to laser-based approaches, various space debris removal techniques have been proposed to actively reduce the mass of debris in orbit.

Active debris removal (ADR) is a key focus area when considering the safety and security of space activities over a long-term. An increase in orbital debris over recent years from both accidents and intentional anti-satellite activities has highlighted the need for global cooperation in order to deal with this problem. This paper aims to showcase the next generation of space sector leaders' perspective on issues relating to ADR and will investigate a novel approach to ADR removal technologies, their feasibility and further motivate the need for using ADR to stabilise the future LEO environment.

The Space Safety and Sustainability (SSS) Working Group of the Space Generation Advisory Council allows for an international forum to showcase the youth's perspective on issues relating to ADR and space safety operations. This paper will be presented by the winner of SGAC's SSS Technical Paper Competition. The paper competition focuses on the numerous technical topics associated with ADR, with the winner funded to present at the 63rd International Astronautical Congress in Naples, Italy.