

Adaptive optics for space debris management.

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ESA has initiated two projects to modify the trajectory of orbital debris using the radiation pressure induced by powerful lasers fired from the Ground. The objective is to change the orbit of debris identified as posing a risk of collision with another orbital object, whether active or not. This is partly to protect active satellites and partly to combat the increase in the number of debris, in order to prevent the occurrence of Kessler syndrome.

The uplink laser must benefit from adaptive optics pre-correction of aberrations caused by optical turbulence. We will present the various concepts of the adaptive optics systems envisaged within the framework of the two projects OMLET and ADAMO, the challenges we face, our solutions, and the preliminary architecture of the system (telescope, AO, power laser).