

IAF MATERIALS AND STRUCTURES SYMPOSIUM (C2)  
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A PROTOTYPE OF A ROBOTIC SWARM FOR AUTONOMOUS ORBITAL INFRASTRUCTURE  
INSPECTION**Abstract**

The space sector is a rapidly growing industry that is demanding regular in-orbit inspection to assess the condition of space platforms and infrastructure to guarantee safety operations and mission assurance. In that scenario, a multi-agent robotic platform for in-orbit visual inspection is proposed to provide a regular monitoring and inspection of critical space infrastructure. In that sense, the proposal addresses the challenges of space's harsh environment over space assets systems and describes the advantages of the proposed approach like accessing remote areas, reducing astronaut risk, increasing inspection efficiency and frequency. Potential applications include ISS inspection, satellite maintenance, spacecraft examination, and future space base construction. This technology is critical to improve space activities sustainability and will settle a safer path for future space exploration. Finally, a first prototype of the platform was tested in weightlessness by using a Remotely Operated Vehicle (ROV).