

Abstract Submitted  
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**The PEGASES gridded ion-ion thruster physics, performance and predictions<sup>1</sup>** ANE AANESLAND, DMYTRO RAFALSKYI, JEROME BREDIN, PASCALINE GRONDEIN, NOUREDDINE OUDINI, PASCAL CHABERT, LPP, CNRS-Ecole Polytechnique — The PEGASES (Plasma propulsion with Electronegative gases) thruster is a gridded ion thruster that accelerates alternately positively and negatively charged ions to provide thrust. Over the last years various prototypes have been tested, adequate diagnostics have been developed and analytical models and simulations are made to better understand and control the physics involved. The plasma density in the region of the ion-ion plasma predicts that the performance of the PEGASES thruster can be comparable to existing thrusters on the market. We have recently provided the first experimental proof-of-concept, accelerating alternately positive and negative ions from an ion-ion plasma within a 10 kHz cycle. Here we present the state of the art in the PEGASES development and discuss the various physics involved and its possible future in space.

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