Paper ID: 40608
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SPACE PROPULSION SYMPOSIUM (C4)
Electric Propulsion (4)

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IFM NANO THRUSTER

Abstract

For more than 15 years several players worldwide have tried to master Field emission electric propulsion (FEEP), but so far, not a single thruster has made it to orbit and a number of development efforts had to be stopped because of unsurmountable difficulties. Even at FOTEC, the birth place of AMR Propulsion Innovations, several concepts had to be discarded until the porous tungsten crown emitter was developed about ten years ago. Now, in 2017, AMR Propulsion Innovations is preparing for the series production of hundreds of such FEEP thrusters every year. Its first product, the IFM Nano Thruster, has already been sold to commercial customers, with the first flight modules being shipped early 2017. The IFM Nano Thruster addresses the urgent need of a propulsion system for micro- and nano-satellites: its wide range of thrust (1N1mN), the excellent throttability, and a high specific impulse (ISP up to 5,000s) allow significant increase in the mission range of such satellites. The high ISP, on the other hand, allows for very high delta-v manoeuvres in the range of several kilometres per second. The modularity, the small volume (less than 1dm3 including propellant and electronics), and its light mass (0.8kg) make the thruster suitable for all small satellites from one to 500kg.