IAF SPACE PROPULSION SYMPOSIUM (C4)
Interactive Presentations - IAF SPACE PROPULSION SYMPOSIUM (IP)

Author: Mr. Sébastien PRIOTTO
ArianeGroup, France, sebastien.priotto@ariane.group

Mr. VIEILLE BRUNO
France, bruno.vieille@cnef.fr
Mrs. Marie Theron
Centre National d'Etudes Spatiales (CNES), France, marie.theron@cnes.fr
Mrs. Stephanie Dreyer
Airbus Safran Launchers, France, stephanie.dreyer@airbusafran-launchers.com

LOX/LH2 ENGINE DEMO PLATFORM

Abstract

CNES, the French Space Agency, and Ariane Group, are preparing the future for new liquid propulsion rocket engines. The most promising technologies, with regards to cost and mass reduction, have been identified through Research and Technology activities, and are now evaluated on a set of demonstrators. This maturation process will enable to decrease the development duration of the next generation liquid engines. These demonstrators are engine components (turbopumps, combustion chamber, valves, igniter...), at a scale harmonized around requirements for a low thrust LOx/LH2 engine (thrust: 10 kN, Isp: 450 s).

Among the system specifications are the bleed cycle, the low pressure igniter and the engine operation in throttling or idle mode. They have been fulfilled by new technologies in association with new manufacturing processes (ALM, plasma-spray).

This demonstration project is also characterized by a subsystem test logic tests performed since 2014 and leading to the 2017 thrust chamber test campaign realized at P8 DLR in combination with the DLR Advanced Altitude Simulation.