

Democritos: Demonstrator Project For A Mw Class Nuclear Electric Spacecraft

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DEMOCRITOS (Demonstrators for Conversion, Reactor, Radiator And Thrusters for Electric Propulsion Systems) is an international project founded by the European Commission to enable a realization of a mega-watt class electric propulsion spacecraft. The project is a follow-on activity of the successful European-Russian cooperation in the frame of the MEGAHIT (Megawatt Highly Efficient Technologies for Space Power and Propulsion Systems for Long-duration Exploration Missions) project.

This paper presents the project results:

- 1) the development logic of a ground demonstrator which will allow to test critical subsystems together: conversion, propulsion, power management and distribution and thermal control.
- 2) Space reactor concepts that are applicable and
- 3) Preliminary design for a 1MW class NEP spacecraft.