32nd IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (E3)
Interactive Presentations - 32nd IAA SYMPOSIUM ON SPACE POLICY, REGULATIONS AND ECONOMICS (IP)

Author: Dr. Frank Jansen
DLR (German Aerospace Center), Germany

Dr. Tim Brandt
Czech Republic
Mr. Jan Thimo Grundmann
DLR (German Aerospace Center), Germany
Prof. Anatoly S. Koroteev
Keldych Research Centre, Russian Federation
Dr. Jim Kuijper
Netherlands (Kingdom of the)
Mr. Christopher Lehnert
DLR (German Aerospace Center), Germany
Mr. Martin Reynders
German Aerospace Centre (DLR), Germany
Dr. Lars Schanz
DLR (German Aerospace Center), Germany
Dr. Bernhard Schmidt-Tedd
Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), Germany
Dr. Alexander Semenkin
Keldych Research Centre, Russian Federation
Dr. Alexander E. Soludukhin
Keldych Research Centre, Russian Federation

MARS/EUROPA INPPS: ALL RIGHT FOR UN NPS PRINCIPLES

Abstract

The presentation gives an overview of the current plans for the INPPS (International Nuclear Power and Propulsion System) flagship design as well as related scenarios for utilization and puts the efforts in context to legal and political challenges. In the last years (2017/2018) significant technological process has been achieved as the nuclear reactor, radiator and propulsion subsystems of INPPS flagship as well as has successfully passed partial ground testing. Thus the next step towards the INPPS goal of efficient and effective transport missions to Mars / Phobos, Jupiter / Europa has been taken.

Hence, it is important to consider wider aspects for the overall mission implementation phase. Mission's components such as the nuclear reactor as the power source for the propulsion system will have to overcome legal constraints related to the 1992 UN principles relevant to the use of nuclear power sources (NPS) in outer space as well as public scrutiny at a time of low appetite for nuclear energy before implementation. Therefore in addition to an update of current technical state of art, this paper will look into the political questions related to the mission design, requirements of associated safety regulations and economic aspects for INPPS flagship commercialization and international communication.

The paper will show that the rationales for pursuing the implementation of this flagship mission

are derived from a technological push but also from wider strategic aspects that benefit a variety of stakeholders and serve multiple goals.

The interactive presentation will be prepared with video clips related to INPPS design, radiation issues interplanetary trajectories as well as commercialization and international communication aspects.