IAF SPACE EXPLORATION SYMPOSIUM (A3)
Moon Exploration – Part 1 (2A)

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QOSMOSYS ZEUS-X, A LUNAR-BASED MULTIPURPOSE PLATFORM FOR IN SITU RESEARCH

Abstract

Developed by Qosmosys and Airbus Defence Space, ZeusX is a novel space vehicle engineered to serve as a versatile platform for in situ planetary science investigations, operating from both cislunar space and the lunar surface. The design of ZeusX emphasizes modularity and adaptability, enabling the integration of a wide array of instrumentation tailored to operate a wide variety of multi-use instruments and sensor technologies, permitting the simultaneous acquisition of primary mission data and supplementary scientific measurements, thereby enhancing the overall data yield of each mission phase.

At its core, ZeusX is intended to function as both a primary exploration asset and a testbed for innovative measurement and analysis techniques. The ZeusX system architecture modular design allows for reconfiguration depending on mission-specific objectives, ensuring that the platform can be adapted for a variety of scientific applications. Preliminary simulation studies indicate that the flexible deployment of ZeusX can yield significant improvements in data resolution and operational efficiency, particularly in challenging environments.

In addition to its primary scientific capabilities, ZeusX is conceived as an enabling technology for future space exploration missions. By providing a platform for the opportunistic use of integrated payloads, the vehicle facilitates the validation of emerging technologies and measurement methodologies. This capability not only augments current mission objectives but also informs the development of next-generation space exploration architectures. Through its performance in operational scenarios, we believe ZeusX is expected to contribute substantially to our understanding of planetary processes and to support the broader objective of establishing sustainable, long-term exploration frameworks within the Solar System.

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