Paper ID: 39297
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15th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)
Conceptualizing Space Elevators and Tethered Satellites (3)

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CRITICAL TECHNOLOGIES FOR SPACE ELEVATOR'S GEO NODES, EARTH PORT, GATES AND COMMUNICATIONS

Abstract

Among the elements of a space elevator, the GEO (Geostationary Earth Orbit) node is the only place where microgravity environment can be kept for tourists, scientists, and engineers. In the IAA Study Group 3.24, the joint team of Obayashi Corporation and Japan Manned Space Systems Corporation (JAMSS) is discussing the detailed functions required for the GEO node. Obayashi Corporation came up with a design of GEO node composed of multiple inflatable modules. JAMSS can apply the ISS operation experience to identify the subsystems needed for safe manned operation and experiments in the GEO node. Technical readiness levels (TRLs) of each subsystem will be examined and listed in this paper. In addition, critical technologies for earth port, gates and communication are discussed here. The result will also be included in the final report of the SG3.24 upon completion of its activity.