

17th IAA SYMPOSIUM ON VISIONS AND STRATEGIES FOR THE FUTURE (D4)
Space Elevator Critical Technology Verification and Validation Testing (3)

Author: Mr. Michael Fitzgerald
Technology, Architectures, and Integration LLC, United States

Dr. Peter Swan
International Space Elevator Consortium, United States

TECHNICAL MATURITY AND DEVELOPMENT READINESS OF THE GALACTIC HARBOUR

Abstract

In the last 6 years the technical maturity and engineering substance of the space elevator has solidified and become organized; most notably as the Galactic Harbour. This progress represents a powerful momentum, not only for the Galactic Harbour but also for establishing enterprise in space and enabling interplanetary missions. ISEC's Technology Development and Maturation approach has melded with a better definition of the Space Elevator engineering solution(s). The authors will review the progress specifics and discuss the likely destinations of this emerging technology momentum. The 2014 publication of ISEC's "Architecture and Roadmap" Report removed the shroud of mystery and myth from the Elevator's scope and complexity. The Elevator's technological basis was no longer a mystery. ISEC's "Design Consideration" documents published between 2013 and 2017 delineated the technology needs and engineering approaches for the Tether Climber, the Earth Port, the GEO Region, and the Apex Anchor. An Architecture simulation tool was selected. The last technology hurdle - strong material for the tether - was conquered. This technology and engineering momentum portray space elevator mission diversity as likely; almost certain. The Galactic Harbour will support enterprise activities along the GEO belt, factories and solar power generation near GEO, efficient interplanetary departures from the Apex and arrivals at GEO, product and materials returns to the Earth Port. All this, closer than you think! The authors will review the technical and engineering readiness of the Galactic Harbour. The review will substantiate the architecture's readiness to be developed and built, and project how the Galactic Harbour will be the essential support to interplanetary missions foreseen for the rest of the century.