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Habitation Throughout the Solar System (1)

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EXPANDING A CONFINED SPACE: THE INTERIOR ARCHITECTURE OF THE GALACTIC SUITE
FREE FLYER MODULE

Abstract

Galactic Suite (GS) is a Barcelona based company, which aims at developing the first space hotel combining orbiting and earth-based elements to offer a comprehensive experience in space tourism.

After fruitful discussions with EADS Astrium the company undertook an internal study to redefine the architecture of the Galactic Suite Spaceresort (GSSR) using modified ATV modules, which would house the necessary ECLSS to sustain short stays of the space tourists. A baseline mission was set for a single module orbiting as a free flyer, considered as the first brick of an autonomous orbital station. Initially the station is set for two passengers and one crew using the Soyuz S/C as access vehicle. The number of space tourists and crew members will increase depending on future availability of RLV with larger capacity; and then the space hotel will also expand in a T-shape cluster up to four modules.

The paper will focus on the internal architecture of the baseline mission module driven by ergonomics and experiential factors. The design process integrates functional and physiological comfort, somehow more measurable human factors requirements, with other significantly harder to measure, like aesthetics or psychological comfort.

The paper will discuss through drawings and imagery the design evolution up to the current stage, discussing project objectives such as maximizing the empty volume of a confined space; provide more intimate areas while keeping an open volume; avoid angled corners; integrate the necessary daily used devices; or expand the limited relation between exterior and interior through virtual views.