

33rd IAA SYMPOSIUM ON SPACE AND SOCIETY (E5)  
Interactive Presentations - 33rd IAA SYMPOSIUM ON SPACE AND SOCIETY (IP)

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A CROSSED LOOK ON SPACE ARCHITECTURE

**Abstract**

Any architectural design is related to an environment in two opposite and complementary ways : first, to take advantage of the natural resources of this environment; and - conversely - to be protected from its threats, or simply from its *lack* of natural resources. *Spatial Architecture pushes this principle to its climax* because it must be designed to adapt to all scenarios : possibility of exploiting solar energy (often), have local construction materials like regolith or vital resources like water ice (sometimes), but in most cases having degraded basic environmental parameters (low gravity or no gravity at all, low atmospheric pressure or no atmosphere at all ...), and real major threats for long term inhabited settlements (radiation, micrometeorites, thermal amplitude, presence of abrasive, corrosive or toxic materials, insulation, ...). To address such constraints, Space Architecture requires a multidisciplinary approach, a close crossed look between architecture and engineering, to no longer see - as too often, in popular science-fiction for instance - projects aesthetically appealing but technologically unrealistic, or conceptually realistic but dull and far too austere for a place to live ...

For this interactive presentation, we wanted to do the exercise of addressing these questions by crossing the eyes of an architect and an engineer, having in common to be former winners of the yearly international competition " *Architecture and Design of Space* " organized by the *Jacques Rougerie Foundation* : Sylve Truyma, architect, CEO of Real Dream, a young company focused on innovation for architecture and the space sector, awarded for the projects *Solar Spore* in 2017, and *Selenia* in 2018; and Olivier Boisard, independent consulting engineer and space designer at OB-Conseil, awarded for the project of space city for 30.000 inhabitants *Apogeios*, co-created with Pierre Marx in 2011 (presented at IAC-Naples in 2012, IAC-12-E5.2.1).

In this IP, which aims to be practical and visual, are presented personal projects of each of them, and a new concept of moon base developed in common with the objective of illustrating and popularizing, for the general public, some original ideas using 3d computer graphics and resources like archviz and game engines.