

IAF SPACE POWER SYMPOSIUM (C3)
Space Power System for Ambitious Missions (4)

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NANOSATELLITE' DESIGN CHALLENGES PROPOSED SOLUTION:
MODULAR-WALL-FLEXIBLE-SOLID-STATE-CERAMIC BATTERIES CONCEPT'S ENGINEERING
DESIGN APPROACH STUDY**Abstract**

Different batteries' arrangements onboard small satellites may be adopted according to their size, design, or even technology. However, for nanosatellites, the mechanical constraints of limited size lead to face the new challenges of designing a system with several missions especially with lack of power, volume is usually occupied by battery arrays leading to reduce the volume available to the bus system and payloads. As a proposed solution for having enough capacity and power within a limited volume and required weight, using a different approach may be the solution. However, it may require to use of a new battery technology which has been already evaluated under a long evaluation process, from launch to space conditions, in which showing promises results. During the following paper, a new concept for an engineering approach for battery arrangement, the MODULAR-WALL-BATTERY (MWB), following the philosophy proposed by authors "To Be Without Being" using advanced battery technology, Flexible-Lithium-Solid-State-Ceramic battery with wide operating temperature range, has been presented, leading to a new nanosatellite battery concept in order to save more volume and provide more power, as well as keeping the design as simple as possible with the ability to be integrated to any design.