

IAF MATERIALS AND STRUCTURES SYMPOSIUM (C2)
Late Breaking Abstracts (LBA) (LBA)

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MODELING OF FUNCTIONALLY GRADED COATINGS AND APPLICATIONS IN SANDWICH
STRUCTURES**Abstract**

The most important application areas of sandwich composites are in industries that require advanced technology. The biggest disadvantage of sandwich structures made of traditional composites is that delamination cannot be prevented due to different material properties on contact surfaces of core and coatings. To prevent such disadvantages in sandwich construction elements, functionally graded materials (FGMs) have been used in recent years. FGMs belong to new class of heterogeneous materials consisting of mixture of ceramics and metals, characterized by smooth and continuous change of mechanical properties. Due to the excellent properties of FGMs, they are applied in spacecraft, rocket technology, nuclear reactors etc. In this study, after modeling the micro and macro mechanical properties of sandwich shells covered by FGM coatings under external pressure, the vibration and stability problem is formulated and solution method is presented as example within shear deformation theories.