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Title: Nonlinear Dynamics of Complex Aerospace Structures.

Abstract: Nonlinearity is a frequent occurrence in engineering structures and, in particular, in aircraft and satellites. It is at the origin of rich and complex dynamical phenomena with no linear counterpart, including jumps, bifurcations and modal interactions. This presentation focuses on two facets of the nonlinear dynamics of aerospace structures, namely nonlinear system identification and simulation. The proposed methods are illustrated using the SmallSat spacecraft developed by EADS-Astrium. This satellite comprises eight non-smooth nonlinearities and exhibits very interesting dynamics.