

STUDY OF THE JITTER ON THE ATTITUDE OF A DUAL SPIN
STABILIZED SATELLITE WITH FLEXIBLE SOLAR PANELS

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ABSTRACT

This work studies the Jitter on the attitude motion of a spin stabilized satellite with two flexible solar panels. The panels vibrational displacements are discretized by the assumed modes method to obtain a model described by ordinary differential equations only. The Lagrangian formulation was used to derive the equations of motion. These equations were integrated numerically and the results, presented in graphical form, show the effects of the rotor misalignments and of the flexibility of the solar panels on the attitude motion. They also show that the Jitter specifications for the satellite under study is satisfied.

GENERAL STRUCTURAL AND AEROELASTIC
PHENOMENA ON SATELLITE LAUNCHERS

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ABSTRACT

The development of a complex system such as the VLS launcher has presented both interesting and challenging problems to the Brazilian aerospace community. Here, we are particularly interested in the areas of structure, structural dynamics and aeroelasticity. The main goal in such areas is to ensure the structural integrity of the vehicle and to guarantee that the level of vibration transmitted to the payload does not exceed its specifications. The present work will describe the approach presently adopted for structural analysis, and it will discuss the dynamic and aeroelastic phenomena we are primarily concerned at the time. Actual applications to the VLS system will be included as time permits. An assessment of future needs and capabilities will be made.