
Parametric Analysis of the Slosh Motion of Internal Mass in a Space Vehicle

Ja-Young Kang

Hankuk Aviation University

Tel: +82-2-300-0081, Fax: 82-2-3158-1849

E-mail: jaykang@hau.ac.kr

The objectives of this study are to perform extensive analysis on internal mass motion for a wider parameter space and to provide suitable design criteria for a broader applicability for the class of spinning spacecraft. In order to examine the stability criterion determined by an analytical method, some numerical simulations will be performed and compared at various parameter points. In this paper, Strutt diagram for determination of stable-unstable regions of the internal mass motion of the spinning thrusting space vehicle in terms of design parameters will be obtained by an analytical method. Also, the time histories of the motion will be examined at various parameter points by computer and characteristics of those responses are compared.