

Abstract Submitted  
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**Numerical simulation of the fluid-structure interaction in an airship through the SPH methodology.**<sup>1</sup> OSCAR I. ROCHA-LOPEZ, RUBEN AVILA, ALEJANDRO GARCIA, Facultad de Ingenieria, UNAM — Airships currently maintained an interest in the scientific field due to their specific flight properties and advantages. However, one of the problems that arise is the way to maintain stability during the flight of these vehicles. In this research, using the free code DualSPHysics (SPH method), the fluid-structure interaction of the YEZ-2A airship (USA Navy, 1989) is analyzed. The Lagrangian methodology is used to study the stability of the Rolling, Pitching and Yawing moments, and the drag and lift average aerodynamic coefficients. It is assumed that the airship is flying in a low Reynolds number regime in a quasi-compressible medium (air). The numerical results are compared with previous studies, both experimental and numerical simulations using the traditional Eulerian-mesh based methods.

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