

MATERIALS AND STRUCTURES SYMPOSIUM (C2)

Space Structures II - Development and Verification (Deployable and Dimensionally Stable Structures) (2)

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SHAPE MEASUREMENT OF CREASED LARGE SPACE MEMBRANE BY PHOTOMETRIC
STEREO TECHNIQUE**Abstract**

The detailed shape configuration of large space membrane is significant for estimating the structural properties and controlling the navigation system of the satellites and space structural systems. The very large space membrane structures as solar sail systems have requested to measure the surface deformation to evaluate the dynamical properties. Also, the embedded devices increase the structural wrinkle and the performance in acceleration is decreased sensitively because of the very light weight spacecraft systems with small thrust. In this paper, the detailed membrane deformations are experimentally investigated by using photometric stereo image processing. Some experiments for creased membrane are performed and the experimental data for IKAROS are examined.