

Cebral, Juan Raúl; Löhner, Rainald

Conservative load projection and tracking for fluid-structure problems. (English)

Zbl 0895.73077

AIAA J. 35, No. 4, 687-692 (1997).

The loose coupling of computational fluid dynamics and computational structural dynamics solvers introduces some problems related to the information transfer between the codes. Some techniques developed to solve the problems of the load transfer and interface surface tracking are presented. The main criterion is to achieve conservation of total loads and total energy. The load projection scheme is based on Gaussian integration and fast interpolation algorithms for unstructured grids. The surface tracking algorithm, also based on interpolation, is important for many applications, including aeroelastic deformation of wings due to aerodynamic loads.

MSC:

74S30 Other numerical methods in solid mechanics (MSC2010)

74F10 Fluid-solid interactions (including aero- and hydro-elasticity, porosity, etc.)

Cited in **31** Documents

Keywords:

load transfer; total loads; total energy; Gaussian integration; fast interpolation algorithms; unstructured grids; aerodynamic loads

Full Text: [DOI](#)