The stability and dynamic behaviour of fluid-loaded structures
R. Suliman, N. Peake

Abstract.
The deformation of slender elastic structures due to the bulk motion of fluid around it is a common Multiphysics problem encountered in many applications. In this work we implement two computational FSI approaches in a partitioned manner: a finite volume method for discretisation of the entire domain and a reduced-order modal approach for the structure coupled with a finite volume fluid solver. Strong-coupling is achieved by means of a fixed-point solver with dynamic relaxation. Both approaches are validated and compared on benchmark problems.

Keywords: fluid-structure interaction; stability; finite volume method; strong-coupling