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## Arbitrary Lagrangian-Eulerian form of Flowfield Dependent Variation method for fluid-structure interaction application (Article)

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### Abstract

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In this study, Flowfield Dependent Variation (FDV) method is coupled with Arbitrary Lagrangian - Eulerian (ALE) method in order to solve fluid-structure interaction problems. FDV method is a mixed explicit - implicit numerical scheme where its implicitness is determined by several parameters that are dependent on the physical properties of the local flow. The scheme which is called as ALE - FDV method is discretized using finite volume method to give flexibility in dealing with complicated geometries. The formulation itself yields a sparse matrix, which can be solved using any iterative algorithm. Several numerical tests have been conducted and the results are in good agreement with exact and available numerical solutions in the literature. © 2006 - 2017 Asian Research Publishing Network (ARPN). All rights reserved.

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