عنوان مقاله:

Presenting a Modified SPH Algorithm for Numerical Studies of Fluid-Structure Interaction Problems

نویسندگان:

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خلاصه مقاله:

A modified Smoothed Particle Hydrodynamics (SPH) method is proposed for fluid-structure interaction (FSI) problems especially, in cases which FSI is combined with solid-rigid contacts. In current work, the modification of the utilized SPH concerns on removing the artificial viscosities and the artificial stresses (which such terms are commonly used to eliminate the effects of tensile and numerical instabilities) as well as decreasing the CPU time with achieving more accuracy and the easier programming in comparison with other methods in the similar cases. The mentioned performance of the proposed algorithm is assessed by solving a test case including deformation of an elastic plate subjected to time-dependent water pressure. The obtained results are in close agreement with other high accuracy methods and experimental results.

کلمات کلیدی:

Smoothed Particles Hydrodynamics (SPH), Fluid, Structure Interaction (FSI) Models, Lagrangian Method, solid, Rigid Contact, Deformation of an Elastic Plate

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