

MODELLING FLUID STRUCTURE INTERACTION FOR A SUBMERGED SPHERICAL BUOY WITH EMBEDDED AND BOUNDARY FITTED STRATEGIES AND EXPERIMENTAL VALIDATION

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Abstract. In this article we compare the results obtained with an implementation of the Finite Volume for structured meshes on GPGPUs with experimental results and also with a Finite Element code with boundary fitted strategy. The example is a fully submerged spherical buoy immersed in a cubic water recipient. The recipient undergoes an harmonic linear motion imposed with a shake table. The experiment is recorded with a high speed camera and the displacement of the buoy is obtained from the video with a MoCap (Motion Capture) algorithm. The amplitude and phase of the resulting motion allows to determine indirectly the added mass and drag of the sphere.