

## **Numerical Simulation of Fluid Structure Interaction Problems in Graphics Processing Hardware; Experimental Validation**

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### **ABSTRACT**

General Purpose Graphics Processing Units (GPGPUs) are coprocessor boards that have a very high raw computing power with respect to their price. In this work we present the implementation of a fluid structure interaction (FSI) code that runs on GPGPUs. The code is based on the Fractional Step Method with a Finite Volume discretization on structured Cartesian grids. Solids are treated with an Immersed Boundary technique, and the FSI is performed with a partitioned integration. The efficiency of the code is studied, and the results are validated against experimental results and with a boundary fitted code based on the Finite Element (FEM), with Arbitrary Lagrangian-Eulerian (ALE) on unstructured grid.