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Sheldon Wang* (xwang@njit.edu), 323 Martin Luther Jr. Blvd., Cullimore Hall Room 625,
New Jersey Institute of Technology, Newark, NJ. *Direct Simulation of Fluid-Solid Systems Using
Implicit Compressible Immersed Continuum Method*. Preliminary report.

In this paper, implicit compressible immersed continuum method is discussed for the modeling of fluid-solid systems. Mixed finite element formulations are introduced to both compressible solids and fluids. The bulk behaviors of the fluid-solid system will be linked to the material properties of fluid and solids as well as the relative locations of immersed solids. With this direct approach, it will be possible to predict certain types of phase transitions of complex fluid-solid systems. (Received December 17, 2007)