5. COMPUTATIONAL SIMULATIONS OF FLUIDIC DYNAMICS USING THE MATERIAL POINT METHOD **J.L. Dean[1], M.W. Roth[1] and Paul A. Gray[2]**

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Development and utilization of the Material Point Method (MPM) to investigate (Langrangian) Navier-Stokes fluid dynamics is presented. Material point particles are placed in a two dimensional boundary specific pipe containing arbitrary stationary perturbations and are given an initial velocity field. Initial results of cursory validation studies are promising; ultimately interactions between particles and boundaries are expected to result in dynamic properties including variations of particle densities, eddy currents along the edges of stationary perturbations and localized vorticity.