1046-76-1402   **Aleksandar Donev*** (`donev1@llnl.gov`), P.O.Box 808, L-367, Livermore, CA 94551-9900, and **Alejandro L Garcia** and **Berni J Alder**. *A hybrid particle-continuum (DSMC-SPDE) algorithm for dense fluid flows.*

We present a hybrid method that couples an explicit fluctuating compressible Navier-Stokes solver with a mesoscopic particle method that generalizes the Direct Simulation Monte Carlo (DSMC) method to dense fluids [A. Donev and A. L. Garcia and B. J. Alder, Phys. Rev. Lett. 101:075902, 2008]. The coupling is flux-based and generalizes previous work [J. B. Bell and A. Garcia and S. A. Williams, SIAM Multiscale Modeling and Simulation, 6:1256-1280, 2008] to dense fluids. The method is applied to the modeling of complex fluids such as colloidal and polymer suspensions.