1171-65-83 **Svetlana Tlupova***, tlupovs@farmingdale.edu. *A domain decomposition solution of the Stokes-Darcy system in 3D based on boundary integrals.*

We present a framework for a robust and highly accurate numerical solution of the coupled Stokes-Darcy system in three dimensions. The method is based on (1) a Dirichlet-Neumann type splitting of the interface conditions and solving separate Stokes and Darcy problems iteratively, and (2) second kind boundary integral equations for the local problems. The integral equations use a smoothing of the kernels that achieves high accuracy on the boundary. We present numerical results for a benchmark problem of viscous flow around a porous sphere, as well as more general surfaces. (Received August 08, 2021)