1147-65-752 **Maxime Theillard***, 2874 El Camino Real, Merced, CA 95340, and **David Saintillan**.

Computational Mean-field Modeling of Confined Active Fluids.

We will present a novel computational method for simulating confined active fluids, described by a continuum mean-field representation. It is constructed as a stable hybrid Finite Volume/Finite Difference method on adaptive Quadtree and Octree grids. The confining geometry is capture via a level-set representation, allowing for virtually any configuration to be considered. Simulations in simple two-dimensional domains are presented to verify and validate the method. More challenging examples will also be discussed, illustrating the full capabilities of our approach. In particular, we will examine flows in two-dimensional lattices and non-trivial three-dimensional geometries. (Received January 28, 2019)