

Abstract Submitted  
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**Simulation of arbitrarily shaped colloids with active boundary layers** FLORENCIO BALBOA USABIAGA, Center for Computational Biology, Flatiron Institute, Simons Foundation, BAKY TZHAN KALLEMOV, Lawrence Berkeley National Laboratory, BLAISE DELMOTTE, ALEKSANDAR DONEV, Courant Institute of Mathematical Sciences, New York University — In this work, we will explore the simulation of active particles of arbitrary shape in Stokes flow. We will discuss how to represent rigid bodies with a multiblob model and how to model the active boundary layers created by phoretic particles with an active velocity slip. In our framework, the simulation of active or passive colloids only requires one mobility solve per time step and the activity effects do not increase the computational cost respect the simulation of passive colloids. We will validate our method against the classical squirmer model and show results for active micro-rods that assemble under their self-induced extensile flows.

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