1157-70-481 **Cody Reeves*** (codyreeves2015@u.northwestern.edu) and **Petia Vlahovska**. *Hydrodynamics for Active Suspensions of Self-Rotating Particles.*

There has been a recent surge in experiments being conducted on active self-rotating particles such as Quincke rotors and ferromagnetic colloids. These systems have demonstrated a wide array of complex collective behaviors: including phase separation, structure formation, and turbulent-like fluid flows. We introduce a continuum model for a suspension of active spinners and the corresponding induced hydrodynamics. This model derivation utilizes the physical dynamics of discrete spinners and, using the Smoluchowski equation, coarsens the dynamics into a continuous distribution. This model has been successful in reproducing and understanding results observed in recent experiments and discrete simulations: including turbulent-like flows and collective formations. We can then study the dynamics of these spinners while under both rigid and deformable confinement. The coupling between a boundary and the spinner-driven hydrodynamics allows for the structure formation. (Received February 03, 2020)