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Active Brownian and Run-and-Tumble particles: A comparison of the large scale dynamics BENJAMIN HANCOCK, APARNA BASKARAN, Brandeis Univ — Active Brownian particles, such as self phoretic colloids, are a class of self propelled particles which swim at fixed speed with orientation that gradually changes through rotational diffusion. Some bacteria obey Run-and-Tumble dynamics, in which particles swim along a fixed orientation until a tumble event occurs that randomly selects a new orientation. At long time and length scales the diffusive-drift limit of the above dynamics appear to be identical. In this large scale limit, we study the effects of external fields on the dynamical properties of these two classes of self propelled particles.

Benjamin Hancock
Brandeis Univ

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