1143-35-108 **Mimi Dai*** (mdai@uic.edu) and **Han Liu**. *Low modes regularity criterion for a full chemotaxis-Navier-Stokes system.*

We consider a full chemotaxis-Navier-Stokes system in three dimensions, which describes bacteria swimming in environmental flows. This complex fluid system involves intricate interactions of microstructure and macroscopic physics. A new regularity criterion is obtained via the developed wavenumber splitting approach from our previous work. The criterion is in terms of only low modes of the oxygen concentration and the fluid velocity, and does not make any reference to the third function, the bacteria density. The result improves many existing criteria in the literature. (Received August 03, 2018)