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**Alexander Panchenko\*** (panchenko@math.wsu.edu). *An averaged continuum model of active particle systems.*

Starting from a fine-scale dissipative particle dynamics (DPD) model of self-motile point particles, we derive meso-scale continuum equations by spatial averaging. The resulting stochastic continuum equations are similar to the phenomenological model of Toner and Tu. However, unlike that model, our theory contains explicit constitutive equations in terms of the parameters of the DPD model, including a constitutive equation for the probability distribution of the averaged stochastic force. Although the self-propulsion forces in the DPD model contain no explicit mechanism for aligning the velocities of neighboring particles, the continuum equations include the commonly encountered cubically nonlinear (internal) body force density which is known to promote flocking. (Received February 06, 2018)