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**Jeremiah Birrell\***, 26 Willow Lane, Lenox, MA 01240. *Small-Mass Limit of Noisy Inertial Particle Dynamics: Higher-Order Approximations.*

Langevin equations model the dynamics of an inertial particle, coupled to forcing, dissipation, and noise. The small-mass regime is a much studied singular limit of these systems. In this talk, I will discuss the derivation of higher-order approximations to the position degrees of freedom in the limit, improving upon the classical overdamped limiting equation. (Received January 18, 2020)