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Kazuo Yamazaki* (kyamazak@ur.rochester.edu), Department of Mathematics, University of Rochester, Rochester, NY 14620. *Exponential convergence of the stochastic micropolar and magneto-micropolar fluid systems.*

The theory of micropolar fluids emphasizes the micro-structure of fluids by coupling the Navier-Stokes equations with micro-rotational velocity, and is widely viewed to be well fit, better than the Navier-Stokes equations, to describe fluids consisting of bar-like elements such as liquid crystals made up of dumbbell molecules or animal blood. Mathematically, the additional terms on the equations that govern the time evolution of the velocity and micro-rotational velocity vector fields are more singular than many other equations such as Benard or magnetic Benard problem, which creates challenging obstacles.

In this talk, I will describe some ergodicity results, precisely the existence of a unique invariant measure of micropolar and magneto-micropolar fluid systems. (Received February 24, 2017)