1048-60-341   **Scott McKinley***, Mathematics Department, Duke University, Box 90320, Durham, NC 27708-0320, and **M. Gregory Forest** and **Lingxing Yao**. *Diffusion in Soft Matter.*

With the advent of sophisticated microscopic tracking techniques, researchers can now conclusively demonstrate that the use of simple Brownian motion as a universal model for diffusion in soft matter is no longer adequate. Long-term memory effects in physical systems are inconsistent with the basic assumptions of Brownian motion and yield qualitatively different behavior. We shall look at one model of such anomalous diffusion – the Generalized Langevin Equation (GLE) – and study it in its singular zero-mass limit. (Received February 10, 2009)