1112-45-308 **Tadele Mengesha*** (mengesha@utk.edu), University of Tennessee Knoxville. *Multiscale analysis of linear nonlocal evolution equations.*

The method of two scale convergence is implemented to study the homogenization of time-dependent nonlocal continuum models of heterogeneous media. Two integro-differential models are considered: the nonlocal convection-diffusion equation and the state-based peridynamic model in nonlocal continuum mechanics. The asymptotic analysis delivers both homogenized dynamics as well as strong approximations expressed in terms of a suitable corrector theory. The method provides a natural analog to that for the time-dependent local PDE models with highly oscillatory coefficients with the distinction that the driving operators considered in this work are bounded. This is a joint work with Qiang Du of Columbia University and Robert Lipton of Louisiana State University. (Received August 07, 2015)