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Nar S Rawal* (nsr0005@auburn.edu), Department of Mathematics and Statistics, Auburn University, Auburn, AL 36849, and **Wenxian Shen**. *Criteria for the Existence of Principal Eigenvalue of Time Periodic Nonlocal Dispersal Operators and Its Applications.*

Both random dispersal operators and nonlocal dispersal operators have been used extensively to model diffusive system in applied sciences and mathematics. While much is known about the existence of principal eigenvalue (PEV) of random dispersal operators, little is known about the existence of PEV of time periodic nonlocal dispersal operators. It should be pointed out that PEV theory of nonlocal dispersal operators without time dependence have been already studied. The talk will be focussed on the criteria for the existance of PEV of time periodic nonlocal dispersal operators with Dirichlet type, Neumann type, and periodic type boundary conditions. In addition to the existence of PEV, the talk will also be focussed on the application of the established PEV theory to the existence, uniqueness, and stability of time periodic positive solutions to Fisher or KPP type equations with nonlocal dispersal in periodic media. (Received September 02, 2013)