72nd Midwest PDE Seminar

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Mimi Dai, *University of Illinois, Chicago* Sat, Nov 16, 11:30–11:50, REC 122

Stability of solutions to the dissipative quasi-geostrophic equations

Abstract. We consider the steady-state Surface Quasi-Geostrophic equation in the whole space $\mathbb{R}^2$ driven by a forcing function f. The class of source function f under certain assumptions yield the existence of at least one solution with finite energy (finite L^2 norm). These solutions are unique among all solutions with finite energy. The constructed solutions are also shown to be stable in the following sense: If Θ is such a solution then any viscous, incompressible flow in the whole space, driven by f and starting with finite energy, will return to Θ.