THE UNIVERSITY
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at CHAPEL HILL

Analysis and PDE Seminar

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PH 385

A priori interior estimates for Lagrangian mean curvature equations

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Abstract. In this talk, we will introduce the special Lagrangian and Lagrangian mean curvature type equations. We will derive a priori interior estimates for the Lagrangian mean curvature equation under certain natural restrictions on the Lagrangian angle. As an application, we will use these estimates to solve the Dirichlet problem for the Lagrangian mean curvature equation with continuous boundary data on a uniformly convex, bounded domain. We will also briefly introduce the fourth-order Hamiltonian stationary equation and mention some recent results on the regularity of solutions of certain fourth-order PDEs, which are critical points of variational integrals of the Hessian of a scalar function. Examples include volume functionals on Lagrangian submanifolds. This is based on joint works with Connor Mooney and Ravi Shankar.