

PDE seminar
University of Minnesota
Wednesday, October 3, 2012

Speaker: **Luca Capogna, IMA**

Title: **Sub-Riemannian heat kernels, heat content and mean curvature flow of graphs.**

Abstract: The study of minimal surfaces and mean curvature flow in the sub-Riemannian setting is still at an early stage, with many basic regularity and existence results still open. In a joint project with Giovanna Citti (U. of Bologna) and Cosimo Senni (U. of Bologna/Magneti Marelli) we introduce a sub-Riemannian analogue of the Bence-Merriman-Osher diffusion driven algorithm and show that it leads to weak solutions of the horizontal mean curvature flow of graphs over sub-Riemannian Carnot groups. The proof follows the nonlinear semi-group theory approach originally introduced by L. C. Evans in the Euclidean setting and is based on new results (as far as we know new also in the Riemannian setting) on the relation between heat content of subgraphs and the horizontal mean curvature of the corresponding graphs.