Meeting: 1004, Bowling Green, Kentucky, SS 13A, Special Session on Nonlinear Analysis and Applied Mathematics

1004-35-125   **Luca Capogna***, Dept. of Mathematical Sciences, University of Arkansas, Fayetteville, AR 72701. *Mean curvature flow in the Heisenberg group.* Preliminary report.

The Heisenberg group, endowed with a sub-Riemannian geometry models a non-isotropic media where motion is only possible along special directions (horizontal). The first variation of the perimeter for hypersurfaces (with respect to the sub-Riemannian geometry) yields a "mean curvature" operator. We study classical and weak solutions to the associate mean curvature flow system, and prove short-time existence, uniqueness and "stability" results for the flow. We also investigate self-similar solutions and possible application to the isoperimetric problem in the Heisenberg group. This is a joint work with Mario Bonk (Michigan). (Received January 21, 2005)