



Junior Analysis Seminars 2026

October 15th, 2026 – 3 pm

Department of Mathematics and Applications “Renato Caccioppoli”
University of Naples “Federico II”
Room: Sala Riunioni, first floor

Mean-convex mean curvature flow in the Heisenberg group

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Abstract. Mean curvature flow (MCF) describes the temporal evolution of a hypersurface by prescribing, at each point, a velocity given by the mean curvature vector, i.e., the product of the mean curvature and the unit normal. In Euclidean space, when the initial datum is a sphere, the MCF evolves it homothetically until it contracts to a point in finite time. In this talk, we introduce a new notion of MCF for surfaces with positive horizontal mean curvature in the Heisenberg group. We will discuss the existence of solutions that preserve positive horizontal mean curvature and prove how the sphere with constant horizontal mean curvature (the conjectured isoperimetric set) does not evolve self-similarly, in contrast to its Euclidean behavior. This talk is based on joint work with Mattia Fogagnolo and Valentina Franceschi.

Organizers. Francesca de Giovanni, Giuliana Fusco, Miriam Piccirillo

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