

INSALATE DI MATEMATICA



Mean Curvature Flow: from Euclidean space to the Heisenberg group

25/02/2026

Gaia Bombardieri

University of Padova

IN THIS TALK

How do shapes evolve when driven by their mean curvature?

In Euclidean space, Huisken's classical theorem ensures that convex surfaces become spherical sub-Riemannian context, analyzing the flow for mean convex hypersurfaces. We will discuss the problem of self-similarity in this setting and present a recent result: the Pansu sphere, despite being the candidate isoperimetric role of self-shrinkers as models for singularities. Then, we will move to the sub-Riemannian context, analyzing the flow for mean convex hypersurfaces. We will discuss the problem of self-similarity in this setting and present a recent result: the Pansu sphere, despite being the candidate isoperimetric profile of H^1 , is not a self-shrinker. This reveals a striking divergence from the Euclidean intuition, where the static isoperimetric solution and the dynamic evolution profile coincide.

 **words: Mean Curvature Flow, Heisenberg Group, Mean Convexity**

"Obvious" is the most dangerous word in mathematics.

(Eric Temple Bell)



[insalate.di.matematica](https://www.instagram.com/insalate.di.matematica)