Annuncio di Seminario

Politecnico di Torino, Aula Buzano DISMA, 23 Gennaio 2020, 14:00

Niels Martin Møller
Department of Mathematical Sciences
University of Copenhagen, H.C. Ørsted Institute

Ancient mean curvature flows

Abstract: Ancient flows arise naturally as singularity profiles in parabolic PDEs, and have for mean curvature flows been studied since the first examples (apart from classical minimal surfaces) were found by Mullins in 1956. Insights from gluing constructions indicate that classifying them as such is not viable, except e.g. under assumption of positive curvatures. However, if one applies certain "forgetful" operations - consider the spacetime track and take its convex hull - then there is a simple classification into just four types, without any assumptions on curvatures. To show this, we prove a "wedge theorem" for proper ancient flows, via a new parabolic Omori-Yau maximum principle for ancient flows. This non-existence result adds to a long story: It can be thought of as a nonlinear Liouville-type result and generalizes our own results for self-translating solitons from 2018 (a main motivating example in the talk) that implies the minimal surface case by Hoffman-Meeks (1990) which in turn contains the cone theorem by Omori (1967) as well as the minimal graph case by Nitsche (1965). This is joint work with Francesco Chini (U Copenhagen).