



Gastvortrag

Donnerstag, 14. März 2024

Uhrzeit: 13.00 Uhr

Seminarraum I

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Gradient Estimates for the Mean Curvature of Graphs

Abstract:

Consider a family of surfaces S which evolves following the parameter $t \in \mathbb{R}^+$ in such a way that it remains non parametric over a domain $\Omega \subset \mathbb{R}^N$, i.e., for all $t \geq 0$ it is given as the set

$$S(t) \equiv \{(x, x_{N+1}) \in \Omega \times \mathbb{R} \mid x_{N+1} = u(x, t)\},$$

for some function $u \in C^\infty(\Omega \times \mathbb{R}^+)$.

We assume that the graph evolves by mean curvature, i.e. u satisfies the quasilinear, parabolic partial differential equation

$$\frac{u_t}{\sqrt{1+|Du|^2}} - \operatorname{div}\left(\frac{Du}{\sqrt{1+|Du|^2}}\right)$$

We are interested in estimates of the gradient Du of (1). The result is not new, the novelty lies in the approach we follow.

This is a work in progress, joint with Daniele Andreucci (Dipartimento di Scienze di Base ed Applicate per l'Ingegneria, Sapienza Università di Roma, Italy), to which Emmanuele DiBenedetto had also originally contributed.