GEOMETRIC ANALYSIS SEMINAR

"Ancient low entropy flows and the mean convex neighborhood conjecture"

Robert Haslhofer
(University of Toronto)

Abstract: In this talk, I will explain our recent proof of the mean convex neighborhood conjecture for the mean curvature flow of surfaces in R^3. Namely, if the flow has a cylindrical singularity at a space-time point X=(x,t), then there exists a positive $\eps=\eps(X)>0$ such that the flow is mean convex in a space-time neighborhood of size $\eps$ around X. The major difficulty is to promote the infinitesimal information about the singularity to a conclusion of macroscopic size. In fact, we prove a more general classification result for all ancient low entropy flows that arise as potential limit flows near X. As an application, we prove the uniqueness conjecture for mean curvature flow through cylindrical singularities. In particular, assuming Ilmanen's multiplicity one conjecture, we conclude that for embedded two-spheres the mean curvature flow through singularities is well-posed. This is joint work with Kyeongsu Choi and Or Hershkovits.

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Time: 4:00 PM

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