

abstract

GEOMETRIC PDE SEMINAR

Topic:

Speaker:

Affiliation:

Date:

Time/Room:

If a solution $(M, g(t))$ of Ricci flow develops a local singularity at a finite time T , then there is a proper subset S of M on which the curvature becomes infinite as time approaches T . Existing approaches to Ricci-flow-with-surgery, due to Hamilton and Perelman, require one to modify the solution in a small neighborhood of S by gluing in a highly curved but nonetheless nonsingular solution. This must be done with careful regard to various surgery parameters in order to preserve critical a priori estimates. In case the local singularity is a rotationally-symmetric neckpinch (in any dimension $n > 2$), we can now restart Ricci flow directly from the singular limit $g(T)$, without performing an intervening surgery or making ad hoc choices. We show that any complete smooth forward evolution from $g(T)$ has a unique asymptotic profile as it emerges from the singularity, which we describe. (This is joint work with Sigurd Angenent and Cristina Caputo.)