Seminar on Cheeger-Colding theory, Ricci flow, Einstein metrics, and Related Topics

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Ancient solutions to the Ricci flow, part 1

Abstract:
A solution to a geometric flow is called ancient if it has a backhistory going back infinitely far in time. Ancient solutions of parabolic PDE are analogous to entire solutions of elliptic PDE. In particular, they play a fundamental role in understanding singularity formation.

Perelman studied ancient solutions to the Ricci flow in dimension 3 which are kappa-noncollapsed, and proved a crucial structure theorem for these ancient kappa-solutions. Moreover, Perelman conjectured that, up to scaling, every noncompact ancient kappa-solution in dimension 3 is isometric to either the Bryant soliton or the standard cylinder (or a quotient thereof). In these lectures, I will discuss the proof of this conjecture.

Host: Bennett Chow

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5:00 PM
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