

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
DEPARTMENT OF MATHEMATICS

Geometric Analysis Seminar

Wednesday, October 20, 2021

4:00pm – 5:00pm **2-131**

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**“Noncollapsed degeneration and desingularization
of Einstein 4-manifolds.”**

Abstract

We study the moduli space of unit-volume Einstein 4-manifolds near its finite-distance boundary, that is, the noncollapsed singularity formation. We prove that any smooth Einstein 4-manifold close to a singular one in a mere Gromov-Hausdorff (GH) sense is the result of a gluing-perturbation procedure that we develop and which handles the presence of multiple trees of singularities at arbitrary scales. This sheds some light on the structure of the moduli space and lets us show that spherical and hyperbolic orbifolds which are Einstein in a synthetic sense cannot be GH-approximated by smooth Einstein 4-manifolds.