

Topics in Geometric Analysis



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Analysis of gravitational instantons

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Gravitational instantons are non-compact Calabi-Yau metrics with L^2 bounded curvature and are categorized into six types. I will describe three projects on gravitational instantons including:

- (a) Fredholm theory and deformation of the *ALHtype*;
- (b) *non-collapsing degeneration limits of ALH* and ALH types;
- (c) existence of stable non-holomorphic minimal spheres in some ALF types.

These three projects utilize geometric microlocal analysis in different singular settings. Based on works joint with Rafe Mazzeo, Yu-Shen Lin and Sidharth Soundararajan.

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