UNIVERSITY AT ALBANY
State University of New York

College of Arts and Sciences
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Colloquium

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On Gromov's dihedral extremality/rigidity conjecture of scalar curvature

Friday, October 4, 2024
3:00 p.m. in Massry BB-012
(tea & coffee at 2:45 p.m.)

Abstract. Abstract: In this talk, I will present my joint work with Jinmin Wang and Guoliang Yu on a new index theorem for manifolds with singularities (such as manifolds with corners and more generally for manifolds with polyhedral type boundary). As an application, we obtained a positive solution to Gromov's dihedral extremality/rigidity conjecture. This conjecture concerns comparisons of scalar curvature, mean curvature and dihedral angles for compact manifolds with polyhedral type boundary, and has very interesting implications in geometry and mathematical physics. Further developments of this new index theorem have led us to a positive solution of Gromov's flat corner domination conjecture. As a consequence, we answered positively a long standing conjecture in discrete geometry - the Stoker conjecture.