Joint Geometric Analysis Seminar

Sharp Levy-Gromov type isoperimetric inequalities

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Abstract

The Levy-Gromov isoperimetric inequality states that under a positive Ricci curvature lower bound, the area-to-volume ratio of a domain is not smaller than that of a certain ball in the comparison space. In this talk, I will present a new sharp Levy-Gromov type isoperimetric inequality which involves the cut distance. There are two new features. One is that we allow the Ricci curvature lower bound to be arbitrary. The second one, which is perhaps more surprising, is that we obtain a lower bound for the volume instead of an upper bound (of course the bound cannot depend only on the boundary area, but also on its cut distance). This contrasts with the classical isoperimetric inequality, the Levy-Gromov isoperimetric inequality and the Bishop-Gromov volume comparison theorem, all of which give an upper bound of the volume of a domain either in terms of its boundary area, or in terms of the volume of its counterpart in the comparison space. If time allows, I will also talk about another isoperimetric inequality which involves the extrinsic radius of a domain.

Date: 24 April 2019 (Wednesday)
Time: 11:00am – 12:00noon
Venue: Room 502a, Academic Building No.1 ,
         The Chinese University of Hong Kong, Shatin

All are Welcome