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Nonnegative curvature and existence of isoperimetric sets

The isoperimetric problem is a well-known variational problem in Geometric Analysis. In this talk we will first review the recent literature on the existence of isoperimetric sets in spaces with nonnegative curvature. Then we will show how to construct a convex body C in $\mathbb{R}^3$ such that for every volume $v < 1$ there is no relative isoperimetric set with volume v, and for every volume $v > 1$ there is at least one relative isoperimetric set with volume v.

This is based on recent works with E. Bruè, M. Fogagnolo, F. Glaudo, and M. Pozzetta.