

## 3-manifolds with small Urysohn 1-width

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**Abstract:** If every unit ball in a Riemannian  $n$ -manifold has small volume, then the manifold can be mapped to an  $(n-1)$ -complex with every fiber of the map having small diameter; this theorem has proofs by Guth in 2017 and Liokumovich--Lishak--Nabotovsky--Rotman and Papasoglu in 2019. It is a variant of a conjecture by Gromov from 1983, which replaces the volume bound on unit balls by a hypothesis that the manifold has positive scalar curvature, and replaces the  $(n-1)$ -complex in the conclusion by an  $(n-2)$ -complex. Is there another version that combines the hypothesis about small unit balls with the stronger conclusion about mapping to an  $(n-2)$ -complex? We state such a conjecture for all  $n$ , and prove a version of it for  $n=3$ . Joint work with Alexey Balitskiy and Larry Guth.