

### **Local collapsing of 3-manifolds with a lower curvature bound**

A Riemannian manifold is collapsed with a lower curvature bound if its sectional curvature is at least  $-1$ , and the volume of every unit ball is small. A localized version of this notion plays a key role in the last part of Perelman's proof of the Thurston's Geometrization Conjecture: it is used to control the topology of the "thin" part of a 3-manifold evolving by Ricci flow with surgery, for large time.

After a brief review of the "thick-thin" decomposition produced by large time Ricci flow, the lecture will focus on the the proof of the main collapsing result, which implies that a sufficiently collapsed 3-manifold is a graph manifold, provided it satisfies additional curvature bounds (of the kind guaranteed by Ricci flow).

This is joint work with John Lott.