Gromov’s systolic inequalities via smoothing techniques

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Abstract: Gromov’s systolic inequality relates the length of a shortest non-contractible loop to the volume of a Riemannian manifold. Moreover, Gromov showed that the optimal constant appearing in the systolic inequality (systolic volume) depends on the topology of manifolds. For example, systolic volume is related to simplicial volume. The aim of this talk is to briefly introduce the ideas of Gromov’s proof of the theorem relating systolic volume to simplicial volume. One of the main tools used in Gromov's proof is the smoothing technique, which relies on an alternative definition of simplicial volume. The smoothing technique was originally introduced by Gromov in the paper *Volume and bounded cohomology*.