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Local Quasiconvexity and Negative Sectional Curvature in Complexes of Groups.

A hyperbolic group is locally quasiconvex if finitely generated subgroups are quasiconvex. We examine conditions on simply connected 2-complexes ensuring local quasiconvexity of groups acting geometrically on them. This extends earlier work of D.Wise on 2-complexes with negative sectional curvature in the case of free actions. Our extension of this result involves a generalization of the notion of combinatorial sectional curvature, a version of the combinatorial Gauss-Bonnet theorem to complexes of groups, and requires the use of ℓ_2 -Betti numbers. This is joint work with Daniel Wise.