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VARIATIONS OF THE BOUNDARY GEOMETRY OF 3–DIMENSIONAL HYPERBOLIC CONVEX CORES

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Dedicated to D.B.A. Epstein, on his 60th birthday.

Let M be a (connected) hyperbolic 3–manifold, namely a complete 3–dimensional Riemannian manifold of constant curvature -1, such that the fundamental group $\pi_1(M)$ is finitely generated. We exclude the somewhat degenerate case where $\pi_1(M)$ has an abelian subgroup of finite index. Then, a fundamental subset of M is its *convex core* C_M, defined as the smallest non-empty closed convex subset of M. The boundary ∂C_M of this convex core is a surface of finite topological type, and its geometry was described by W. P. Thurston [17] (see also [8]): The surface ∂C_M is almost everywhere totally geodesic, and is bent along a family of disjoint geodesics called its *pleating locus* . The path metric induced by the metric of M is hyperbolic, and the way ∂C_M is bent is completely determined by a certain measured geodesic lamination.

We want to investigate how the geometry of ∂C_M varies as we deform the metric of M. For technical reasons, in particular because we do not want the topology of ∂C_M to change, we choose to restrict attention to *quasi-isometric deformations* of M, namely hyperbolic manifolds M' for which there exists a diffeomorphism $M \to M'$ whose differential is uniformly bounded. In the language of Kleinian groups, a

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