

Added on December 4, 2002:

The non-triviality of $\partial\Gamma$ is in fact not an issue: Let Γ be a finitely generated fundamental group of a hyperbolic 3-manifold. It is known from Scott's Core theorem and Thurston's Uniformization theorem that the group Γ can be made to act as a geometrically finite Kleinian group, see D.B.A. Epstein et al., *Word Processing in Groups*, Jones and Bartlett Publishers, Boston, London, 1992, p. 266-267. Hence we know from [Fl 80] that the boundary $\partial\Gamma$ is infinite (provided that Γ is non-elementary of course) and we have:

Theorem 1 *Let N be a hyperbolic 3-manifold with finitely generated fundamental group and denote by Λ its limit set on the boundary of the hyperbolic 3-space. Then there exists a unique (up to null sets) measurable, $\pi_1(N)$ -equivariant map*

$$F : \partial\pi_1(N) \rightarrow \Lambda.$$

It is perhaps interesting to compare this result with P. Tukia, *The limit map of a homomorphism of discrete Möbius groups*, Publ. I.H.É.S. 82 (1995) 97-132, which also considers measurable boundary maps. In view of contractivity properties, quite generally, a map such as F either agrees with a continuous map or is very discontinuous (the F -image of every neighborhood of a point is dense in Λ). For references to other papers discussing the conjecture, see [McM 01].