

THE FUNDAMENTAL INEQUALITY FOR COCOMPACT FUCHSIAN GROUPS

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A recurring question in the theory of random walks on hyperbolic spaces asks whether the hitting (harmonic) measures can coincide with measures of geometric origin, such as the Lebesgue measure. This is also related to the inequality between entropy and drift, going back to Guivarc'h and called the *fundamental inequality* by Vershik.

For finitely-supported random walks on cocompact Fuchsian groups with symmetric fundamental domain, we prove that the hitting measure is singular with respect to Lebesgue measure; moreover, its Hausdorff dimension is strictly less than 1.

Along the way, we prove a purely geometric inequality for geodesic lengths, strongly reminiscent of the Anderson-Canary-Culler-Shalen inequality for free Kleinian groups.

Joint with P. Kosenko.