



Mathematics > Probability

# Random Walk on a Co-Compact Fuchsian Group

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It is proved that the Green's function of a symmetric finite range random walk on a co-compact Fuchsian group decays exponentially in distance at the radius of convergence  $R$ . It is also shown that Ancona's inequalities extend to  $R$ , and therefore that the Martin boundary for  $R$ -potentials coincides with the natural geometric boundary  $S^1$ , and that the Martin kernel is uniformly  $H^1$ -order continuous. Finally, it is proved that this implies a local limit theorem for the transition probabilities.

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