

1068-60-62

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We consider Markov chains on the symbolic space of a self-similar set  $K$ . The general problem is to identify the Martin boundary with  $K$ , which allows a natural harmonic structure on  $K$ . In particular we introduce a Markov chain on the Sierpinski gasket so that the Martin boundary is homeomorphic to the SG and the minimal boundary is the three vertices; the harmonic structure coincides with that by Kigami. This offers an alternative approach to study the existence of Laplacian on the self-similar sets. (Received January 11, 2011)