Ergodic homogeneous multidimensional continued fraction algorithms

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Abstract

Multidimensional continued fraction algorithms have been studied with the hopes of advancing classical results on diophantine approximation from dimension 1 to higher dimensions. We prove that homogeneous algorithms which act piecewise linearly on finitely many copies of positive cones, as in the case of Rauzy induction type algorithms, are ergodic. In particular, Selmer algorithm is ergodic. In fact once we will prove that they are ergodic with respect to Lebesgue measure, it will imply that they are exact, so they satisfy a $0-1$ law.

The talk is based on a joint work with Jon Chaika.