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*Connes and Woods Approximate Transitivity and Dimension Spaces*

In 1985, Connes and Woods defined the notion of an approximately transitive (AT) action of a group on a Lebesgue space in their study of the flow of weights of particular von Neumann factors, the Araki–Woods factors or equivalently of the associated flow of ergodic, non-singular transformations. Four years later, they studied the Poisson boundary of group-invariant, time-dependent Markov random walks defined on a locally compact group  $G$  and pointed out that it is an AT and amenable  $G$ -space. G. A. Elliott and myself proved that any AT and amenable  $G$ -space is such a Poisson boundary. With D. Handelman, I have introduced the notion of dimension  $G$ -spaces to study AT and amenable  $G$ -actions. In this talk, I will review the notion of approximate transitivity and of dimension  $G$ -spaces and present some specific constructions of AT and non-AT transformations.