Anna Savvopoulou

Almost everywhere convergence of a case of weighted averages

Given a probability measure μ on $\mathbb{Z}$, Calderón and Bellow proved a weak type inequality for the maximal operator of $\mu_n\left(f(x)\right) = \sum_{k\in\mathbb{Z}} \mu^n(k) f\left(\sigma^k(x)\right)$ where μ^n denotes the convolution product. This talk will focus on the case of a sequence of probability measures on $\mathbb{Z}$, denoted by $\{\mu_n\}$, obtained inductively in the following way, $\mu_1 = \nu_1$, $\mu_2 = \nu_1 * \nu_2$, ..., $\mu_n = \nu_1 * \nu_2 * \cdots * \nu_n$, where each one of the ν_i is in turn a strictly aperiodic probability measure on $\mathbb{Z}$ with expectation 0 and finite second moment. We will discuss the almost everywhere convergence of the operators $\mu_n f(x) = \sum_{k\in\mathbb{Z}} \mu_n(k) f(\sigma^k x)$ for $f \in L^1(X)$ and $x \in X$. Throughout the talk σ will stand for a measure preserving transformation of a probability measure space X.