Abstract

Consider the discrete Schrodinger operator with Sturmian potential

$$V(n) = \lambda\chi_{(1-\alpha,1]}(n\alpha).$$

We denote the Hausdorff and box dimensions of the spectrum by $D_H(\alpha,\lambda)$ and $D_B(\alpha,\lambda)$. We denote the Hausdorff and packing dimensions of the density of states measure by $d_H(\alpha,\lambda)$ and $d_P(\alpha,\lambda)$. Assume $\lambda \geq 24$. We show that there exists $0 < d(\lambda) \leq D(\lambda)$ such that for Lebesgue a.e. α,

$$d(\lambda) = d_H(\alpha,\lambda) = d_P(\alpha,\lambda);\ D(\lambda)= D_H(\alpha,\lambda) = D_B(\alpha,\lambda).$$

In particular, for Lebesgue a.e. α, the density of states measure is exact-dimensional. This is a joint work with Jie Cao.