Dimension of Furstenberg measure of SL_2(R) random matrix products

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Given a probability measure mu on the space of 2x2 matrices, there is, under mild conditions, a unique measure nu on the space of lines which is stationary for mu (this is also the asymptotic distribution of the direction of the major axis of the image of the unit ball under an i.i.d. random matrix product with marginal mu). This measure is called the Furstenberg measure of mu, and is important in many context, from the study of random matrix products to recent work on self-affine sets and measures. Of particular importance are the smoothness and dimension of the Furstenberg measure. In this talk I will discuss joint work with Boris Solomyak in which we adapt methods from additive combinatorics and the theory of self-similar measures to compute its dimension in many cases.