On the dimension of Furstenberg measure for SL(2,R) random matrix products and the Diophantine condition in matrix groups.

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Tuesday, January 29, 2019 - 1:30pm to 3:30pm
PDL C-401

Let $\mu$ be a finitely supported measure on $SL(2,R)$ generating a non-compact and totally irreducible subgroup. Furstenberg proved that there is a unique stationary measure for the induced action on the projective line (now often called the "Furstenberg measure"), with a positive Lyapunov exponent. In joint work with M. Hochman, we computed the Hausdorff dimension of the Furstenberg measure, assuming a Diophantine condition on the support of $\mu$.

In the introductory talk, I will state the result and explain the background. In the main talk, I will present some ideas from the proof. I will also discuss some follow-up results on the Diophantine property in matrix groups and on the dimension of the support of the Furstenberg measure, joint with Y. Takahashi.