

# EXPANSION, RANDOM WALKS AND SIEVING IN $SL_2(\mathbb{F}_p[t])$

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The past decade has seen remarkable developments in the construction of expander graphs from congruence images of linear groups over characteristic zero fields, beginning with the seminal work of Bourgain and Gamburd. These constructions have led in turn to many new results on return probabilities for random walks on such groups. We give the first application of Bourgain and Gamburd's methods to linear groups over fields of positive characteristic. We also highlight some potential obstructions to extending our results, which call for further investigation.