<u>**ABSTRACT**</u>

Speaker: Shmuel Friedland

Title: COMPUTING THE HAUSDORFF DIMENSIONS OF SUBSHIFTS USING MATRICES

Abstract. A space of infinite paths on a given digraph Γ is called a subshift of finite type (SFT). On this space we introduce a pseudometric d given by a nonnegative matrix B, which satisfies the cycle condition. We show that the Hausdorff dimension of this SFT with respect to d is given by the Mauldin-Williams formula. If the ratio of any two entries of B is rational, we show that the Hausdorff dimension can be essentially expressed in terms of the logarithm of the spectral radius of $\tilde{\Gamma}$. $\tilde{\Gamma}$ is obtained by the expansion of Γ. We apply our results to find a certain invariant of a finitely generated subgroup of a given finitely generated free group.

Reference: S. Friedland, Computing the Hausdorff Dimension of Subshifts Using Matrices, *Linear Alg. Appl.* 273 (1998), 133-167.