1135-37-456 **De-Jun Feng**, **Chiu-Hong Lo** and **Shuang Shen*** (shuangshen@nwpu.edu.cn). *Lyapunov Exponents for products of matrices.*

Let $\mathbf{M} = (M_1, \cdots, M_k)$ be a tuple of real $d \times d$ matrices. Under certain irreducibility assumptions, we give checkable criteria for deciding whether $\mathbf{M}$ possesses the following property: there exist two constants $\lambda \in \mathbb{R}$ and $C > 0$ such that for any $n \in \mathbb{N}$ and any $i_1, \cdots, i_n \in \{1, \cdots, k\}$, either $M_{i_1} \cdots M_{i_n} = \mathbf{0}$ or $C^{-1}e^{\lambda n} \le \|M_{i_1} \cdots M_{i_n}\| \le Ce^{\lambda n}$, where $\|\cdot\|$ is a matrix norm. The proof is based on symbolic dynamics and the thermodynamic formalism for matrix products. As applications, we are able to check the absolute continuity of a class of overlapping self-similar measures on $\mathbb{R}$, the absolute continuity of certain self-affine measures in $\mathbb{R}^d$ and the dimensional regularity of a class of sofic affine-invariant sets in the plane. (Received September 04, 2017)