

1096-37-1421

Steve Kass* (skass@drew.edu) and **Kathleen Madden**. *A sufficient condition for non-soficness of higher-dimensional subshifts.*

A shift space is called *sofic* if it is a factor of a shift of finite type, and in one dimension, the sofic shifts are completely characterized. In higher dimensions, however, no characterization is known, and for $d > 1$ the literature contains relatively few examples of non-sofic \mathbb{Z}^d subshifts. It is not even known whether the free product $X^{\mathbb{Z}}$ is non-sofic whenever X is.

For $d = 1$, the sofic \mathbb{Z}^d subshifts are characterized in terms of *follower sets*, but there is no direct generalization of follower sets for $d > 1$.

In this work, we define *extender sets*, and we use them to establish a sufficient condition for a \mathbb{Z}^d subshift X to be non-sofic. We apply this condition to a variety of examples, and we show that our condition also implies that $X^{\mathbb{Z}}$ is non-sofic. (Received September 15, 2013)