1138-37-79 **Natalie P Frank** (nafrank@vassar.edu) and **E. Arthur Robinson, Jr.*** (robinson@gwu.edu).

A family of infinite local complexity tiling flows with countable Lebesgue spectrum.

For $R > 1$, we consider a 1-parameter family of 1-dimensional tiling substitutions, and the underlying discrete substitution on the Hilbert cube $[1, R+1]^{\mathbb{Z}}$. These substitutions generalize the well known Fibonacci substitution $s \to \ell; \ell \to \ell s$. But in the new susbstitution, s: "short", and ℓ "long", are not constant, but satisfy $s \in [1, R]$ and $\ell \in [R, R+1]$.

To perform the substitution, we first expand each length by $\lambda = (R+1)/R$. Then λs becomes ℓ, but $\lambda \ell$ becomes ℓ then s, where now s and ℓ satisfy $\ell/s = R$. We study the resulting Hilbert cube subshifts and the corresponding tiling dynamical systems.

We show that the choice of the R determines whether the tiling space has finite or infinite local complexity, which happens except for a countable set of R. $R = (1/2)(1 + \sqrt{5})$ gives the locally-finite Fibonacci substitution, with pure discrete spectrum. Other locally-finite values of R are weakly mixing but not strongly mixing.

But we show that for all the locally-infinite cases we get countable Lebesgue spectrum, and thus are strongly mixing. All the examples, however, have entropy zero. (Received January 30, 2018)