1135-37-1483 **Natalie Priebe Frank** and **E Arthur Robinson, Jr.*** (`robinson@gwu.edu`), Deptartment of Mathematics, George Washington University, Washington, DC 20052. *A family of infinite local complexity tiling flows with countable Lebesgue spectrum.* Preliminary report.

For $R > 1$, we consider a 1-parameter family of 1-dimensional tiling substitutions generalizing the well known Fibonacci substitution $a \to b; b \to ba$. Here a and b are 'short' and 'long' tiles respectively, whose lengths, also denoted a and b, satisfy $a \in [1, R]$ and $b \in [R, R+1]$. We first expand each tile by $\lambda = (R+1)/R$. Then λa becomes b, but λb becomes two adjacent tiles ba with length ratio $b/a = R$. We study the resulting tiling dynamical system.

The choice of R determines whether the tiling space has finite or infinite local complexity. It is infinite except for a countable set of R, and in fact $R = (1/2)(1+\sqrt{5})$ gives the usual Perron-Frobenius Fibonacci substitution flow, which has pure discrete spectrum as a consequence of the Pisot property. Other R giving finite local complexity give weakly mixing flows which, because of finite local complexity, are not strongly mixing. But we show that the infinite local complexity cases all have countable Lebesgue spectrum, and are thus strongly mixing. The entropy, however, is zero. (Received September 22, 2017)