title: Asymptotic translation length of pseudo-Anosov maps on the curve complex

abstract: Let S be a hyperbolic surface. Each mapping class f in the mapping class group of S acts by an isometry on the curve complex $C(S)$. Then the asymptotic translation length of f on $C(S)$ can be defined. It measures the distance between a curve c and $f^n(c)$ on average. It is known by Masur-Minsky that a mapping class f is pseudo-Anosov if and only if the asymptotic translation length of f on $C(S)$ is positive. One can similarly define the asymptotic translation length of f on the Teichmüller space of S with the Teichmüller metric, which is equal to the entropy (logarithm of the stretch factor) of f. Given a hyperbolic fibered 3-manifold M, we consider sequences of fibers and pseudo-Anosov monodromies for primitive integral classes in the fibered cone of M. We study if it is possible to obtain a continuous extension of normalized asymptotic translation lengths on the curve complex as a function on the fibered face. An analogous question for normalized entropy has been answered affirmatively by Fried. We show that such an extension in the case of the curve complex does not exist in general by explicit computation for sequences in the fibered cone of the magic manifold. This is joint work with Hyungryul Baik, Hyunshik Shin, Chenxi Wu.