I am excited to share the following updates on my recent research progress:

Nielsen realization problem for derived automorphisms of generic K3 surfaces.

In this work (link here), we address a version of the Nielsen realization problem for K3 surfaces. Our results are similar to the recent research by Farb and Looijenga. Specifically, we demonstrate that any finite subgroup of the autoequivalence group of the derived category of a generic K3 surface always fixes a stability condition. This enables us to fully classify such finite subgroups.

On entropy of $\mathbb{P}$-twists.

In this work (link here), I utilize the shifting numbers of autoequivalences that I recently developed to show that spherical twists and $\mathbb{P}$-twists are not conjugate to any standard autoequivalences of the derived category of coherent sheaves on varieties. Essentially, this proves that spherical twists and $\mathbb{P}$-twists do not originate from complex dynamics. I find this to be a fascinating application of dynamical invariants to the geometry of autoequivalences.

A space of stability conditions that is not a length space.

In this work (link here), I present the first example of a Bridgeland stability space that is not a length space. This finding disproves a conjecture related to the metric properties of Bridgeland stability spaces.