1160-14-48 **Ruijie Yang***, ruijie.yang@stonybrook.edu. *The space of nodal elliptic curves on polarized K3 surfaces.*

In algebraic geometry, it is a common phenomenon that moduli space of geometric objects tend to become more and more complicated as invariants parametrizing them go to infinity. In this talk, I would like to discuss this phenomenon for the space of singular curves on K3 surfaces.

Let (X, L) be a very general polarized K3 surface of genus g so that $L^2 = 2g - 2$. A curve C in the linear system $|L|$ is a rational curve if and only if it has g nodes. The Yau-Zarslow formula implies that the number of rational curves goes to infinity as g goes to infinity.

We would like to explore the next case: curves in the linear system $|L|$ with $(g-1)$-nodes. They are singular elliptic curves and let M be the space of such curves. It can be shown that M is one dimensional, hence we can talk its geometric genus. With Nathan Chen and Francois Greer, we show that the geometric genus of M goes to infinity as g goes to infinity. (Received July 31, 2020)