Abstract:

We will discuss a technique which allows one to approximate singular varieties by smooth spaces called stacks. As an application, we will address the following question, as well as some generalizations: given a linear action of a group $G$ on complex $n$-space $\mathbb{C}^n$, when is the quotient $\mathbb{C}^n/G$ a singular variety? We will also mention some applications to Hodge theory and to derived equivalences.