One goal of my research is to develop the capability for a widely-used simulation software (Geant4) to perform tuning of its models to external data. Originally, this will be used specifically for pion scattering models, but can later be developed to include functionality for other particles and interactions. As such, my work aligns with SCGSR Priority Research Area *Theoretical and Computational Research in High Energy Physics* (V.a).

A final goal of the research is to provide a tuning of Geant4's pion-Argon Secondary Interaction (SI) model to recent pion-Argon scattering data. This work will be used to reduce uncertainties in DUNE's neutrino energy reconstruction, and can be used to support neutrino experiments in general. Thus, my work also falls under Priority Research Area *Experimental Research in High Energy Physics* (V.c).