

This work will provide me with training in software development. Implementing the tuning ability in Geant4 will provide me with experience that will improve my skills in coding with C++, and in developing fully fledged software rather than simple programs and scripts. As the tunings will require many iterations of fits to be performed, I can parallelize the code. This will provide me with experience using parallel computing frameworks.

The research will also improve my knowledge of statistics and model testing. It will require me to understand fitting procedures, the handling of experimental uncertainties as inputs to fits, and how to interpret fit results. This will prepare me for my thesis, as I will have to understand this to measure a cross section from ProtoDUNE data.