P2.041 **Progress towards a retune of the comprehensive neutrino interaction model in the GENIE Monte Carlo Generator**

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Comprehensive neutrino interaction simulations play an important role in experimental neutrino physics. These simulations are the single interface between theory and experiment, and thus they connect the observed and true neutrino interaction characteristics. Simulations play a critical role both in the design and physics exploitation of experiments. GENIE is the most commonly used Neutrino Monte Carlo Generator. Besides a modern software framework and advanced physics modules, it includes tools to support generator-related analysis tasks, as well as components for realistic simulation of complex experimental setups. GENIE is fully integrated in the simulation chain of nearly all current and near-future neutrino experiments. Due to its nearly universal adoption, the GENIE comprehensive neutrino interaction model serves as a standard candle for the world neutrino community. Research and development leading to improvements of the GENIE comprehensive model has an immediate and far-reaching impact to the neutrino community. A long series of GENIE physics models changes were incrementally installed over the last couple of years. These changes were made available as optional physics models in a series of model introduction releases. At the same time several new comparisons of GENIE against data releases of contemporary experiments were implemented and added to its existing collection of comparisons against neutrino, electron and hadron scattering data. Equipped with a large array of new physics models and a vast collection of data/MC comparisons, the GENIE Collaboration now attempts to develop global fits to scattering data and a systematic procedure for comprehensive neutrino interaction model tuning. This poster summarises recent changes, as well as the scope and progress of towards a GENIE retune (v3.0.0) aimed for release at the end-of summer time scale.