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Unbiased reconstruction of calorimetric variables in cross-section analyses

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Neutrino cross-sections are often extracted purely in terms of lepton kinematics. In recent years more detailed analyses have been developed that additionally make use of kinematics in the hadronic system, which has proven very successful. However, even with new detector technologies of unparalleled precision, pattern recognition and reconstruction algorithms still require particle momenta above a given detection threshold. Calorimetric variables such as the hadronic energy provide alternative handles on the kinematics in the hadronic system and do not rely on a successful reconstruction of the hadron track. This talk will detail different methods to measure cross sections as a function of calorimetric variables in plastic scintillator based detectors and the problems and potential biases accompanying them.

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