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Development of An Energetic Particle Module and Integration into IMFIT With Initial Applications*, W. Guo, *ASIPP*, M.S. Chu, L.L. Lao, *GA*, Y. Liu, *UKAEA*, Q. Ren, G. Li, C. Pan, *ASIPP*, D. Yadykin, *CTH*— The performance of future burning tokamak experiments depends critically on the behavior of energetic particles. To facilitate the validation of energetic particle physics in present-day experiments, an energetic particle physics module is being developed and integrated into the IMFIT Integrated Modeling tool. This IMFIT module provides a convenient platform to facilitate interactions among various physics codes starting from the experimental data to the analysis of stability and transport with the inclusion of energetic particles. Key components of the module include the EFIT, NUBEAM, CONT, ONETWO, and MARS-K codes, in which the effects of fast ions have been implanted. Starting from experimental data, the energetic particle distribution function is obtained by using various birth and transport models, and their subsequent effect on the stability and transport of the background plasma studied. Initial applications using DIII-D experimental data will be presented.

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