

Development of profiling system for low energy physics

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The Standard Model in particle physics is refined. However, new physics beyond the standard model, such as dark matter, requires thousand to million times of simulation events compared to those of the Standard Model. Thus, the development of software is required, especially for the development of simulation tool kits. In addition, computing is evolving. It requires the development of the simulation tool kit to accommodate the evolving computing architecture. Therefore, an efficient simulation tool kit is needed. Then, a profiling system is required to confirm it. In Geant4, a typical simulation tool kit, a profiling system in higher-energy physics areas such as the LHC experiment is well developed, contributing to the development of the software. However, profiling systems in the low-energy physics domain are in the beginning stage. Therefore, we develop it and show performances using it. In addition, profiling is performed depending on the development of software. These profiling systems could be used to confirm the development of software for evolving computing architecture.

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