Avviso di Seminario

Hydra: A framework for data analysis in massively parallel platforms

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Hydra is a templatized header-only, C++11-compliant framework for data analysis on massively parallel platforms targeting the field of High Energy Physics (HEP) research. Hydra supports the description of particle decays via the generation of phase-space Monte Carlo, generic function evaluation, data fitting, multidimensional numerical integration and sampling of distributions, s-plots and many other common data analysis tasks. The framework deploys a series of techniques in order to maximize the performance in both computing and management of memory resources. The project is open source and it is developed on top of the STL and Thrust libraries and runs on Linux systems. Hydra deploys transparently CUDA-enabled GPUs as well as OpenMP and TBB enabled devices, such as multicore CPUs. This seminar summarizes the main features of Hydra. A basic description of the user interface and some examples of applications are provided, along with some measurements of performance in a variety of environments.