

Applying distributed parametric optimization algorithms to partial wave analysis at the PANDA experiment

This presentation discusses the pros and cons of applying different parametric optimization algorithms to partial wave analysis at the PANDA experiment at GSI Darmstadt/Germany. The presentation is based on the experiences gained with the Geneva library -- an Open Source, general purpose framework for performing parametric optimization in parallel and distributed environments, such as GPGPU, Clusters, Grids and Clouds. It was recently extended with various new algorithms. In addition to evolutionary algorithms, Geneva now also supports particle swarm optimization as well as gradient descents. Further algorithms are in the process of being added. Geneva was developed with kind support from Steinbuch Centre for Computing at Karlsruhe Institute of Technology, as well as the Helmholtz society of German research centres. The presentation also discusses other use cases in particle physics currently being worked on.

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