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Statistical Software in ROOT

Advanced mathematical and statistical computational methods are required by the LHC experiments for analyzing their data. Some of these methods are provided by the ROOT project, a C++ Object Oriented framework for large scale data handling applications. Various statistical classes and methods currently exist in ROOT spread in various libraries. Examples include methods for regression analysis, for estimating confidence levels or for classification using multi-variate analysis techniques.
An effort is on-going to re-organize these classes and integrate them together with new tools, which are currently developed by the high energy physics community, in a set of coherent and modular statistical libraries. Emphasis will be on the quality and the performance of the methods but also on the easiness of use in order to allow the comparison of similar methods without difficulty. Furthermore, a coherent design of the libraries will allow extensions and easy integration of new statistical methods developed by the physics or statistical community. The final goal is to provide common standard implementations of statistical methods required for the analysis of the LHC data.
We will briefly review the current statistical classes present in ROOT and we will present in greater detail our plans for developing these new common statistical libraries in collaboration with the LHC experiments.

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