

The RooFit toolkit for data modeling

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RooFit is a library of C++ classes that facilitate data modeling in the ROOT environment. Mathematical concepts such as variables, (probability density) functions and integrals are represented as C++ objects. The package provides a flexible framework for building complex fit models through classes that mimic math operators, and is straightforward to extend. For all constructed models RooFit provides a concise yet powerful interface for fitting (binned and unbinned likelihood, χ^2 , plotting and toy Monte Carlo generation as well as sophisticated tools to manage large scale projects. RooFit has matured since 1999 into an industrial strength tool and has been used in the BABAR experiments most complicated fits. Recent developments include the ability to persist probability density functions into ROOT files that can be easily shared and used with a simple interface, without the need to distribute code. Model persistence enables the concept of digital publishing of complex physics result and provide a foundation for higher level statistical tools for the LHC experiments to calculate combined physics results.

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