

# High Level Interface to Conditions Data at Belle II

*Tuesday 11 October 2016 16:30 (15 minutes)*

The Belle II experiment at the SuperKEKB e+e- accelerator is preparing for taking first collision data next year. For the success of the experiment it is essential to have information about varying conditions available in the simulation, reconstruction, and analysis code.

The interface to the conditions data in the client code was designed to make the life for developers as easy as possible. Two classes, one for single objects and one for arrays of objects, provide a type-safe access. Their interface resembles that of the classes for the access to event-level data with which the developers are already familiar. Changes of the referred conditions objects are usually transparent to the client code, but they can be checked for and functions or methods can be registered that are called back whenever a conditions data object is updated. Relations between objects in arrays can be established by a templated class that looks like a pointer and can use any method return value as key to identify the referred object. The framework behind the interface fetches objects from the back-end database only when needed and caches them while they are valid. It can transparently handle validity ranges that are shorter than a run which is the finest granularity for the validity of payloads in the database. Besides an access to the central database the framework supports local conditions data storage which can be used as fallback solution or to overwrite values in the central database with custom ones.

The talk will present the design of the conditions database interface in the Belle II software, show examples of its application, and report about usage experiences in large-scale Monte Carlo productions and calibration exercises.

## Secondary Keyword (Optional)

Databases

## Primary Keyword (Mandatory)

Data processing workflows and frameworks/pipelines

## Tertiary Keyword (Optional)

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