

## The HADES Oracle database and its interfaces for experimentalists

*Monday, March 23, 2009 5:10 PM (20 minutes)*

Since 2002 the HADES experiment at GSI employs an Oracle database for storing of all parameters relevant for simulation and data analysis. The implementation features a flexible, multi-dimensional and easy-to-use version management. Direct interfaces to the ROOT-based analysis and simulation framework HYDRA allow for an automated initialization based on actual or historic data which is needed at all levels of the analysis. Generic data structures, database tables and interfaces were developed to store variable sets of parameters of various types (C-types, binary arrays, ROOT based classes). A snapshot of the data can be stored in a ROOT file for exporting and local access. Web interfaces are used for parameter validation, to show the history of the data and to compare different data sets. They also provide access to additional information not directly used in the analysis (file catalog, beam time logbook, hardware). An interface between the EPICS runtime database and Oracle is realized by a program developed at SLAC. Run-based summary information is provided to allow for fast scans and filtering of the data indispensable for run validation. Web interfaces as well as interfaces to the analysis exist to make e.g. use of the ROOT graphics package. The database concept reported here is a possible platform for the implementation of a database in FAIR-ROOT, the latter being an advancement/offspring of HYDRA.

### Presentation type (oral | poster)

oral

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**Session Classification:** Software Components, Tools and Databases

**Track Classification:** Software Components, Tools and Databases