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ROAn, a ROOT based Analysis Framework (not only) for DePFET detector data

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The ROOT based (Offline) Analysis (ROAn) framework was developed to perform data analysis on data from Depleted P-channel Field Effect Transistor (DePFET) detectors, a new type of active pixel sensors developed at the MPI semiconductor laboratory (HLL). It is highly
flexible and extensible, thanks to ROOT's features like run-time type information and reflection.
ROAn provides an analysis program which allows to perform configurable step-by-step analysis on arbitrary data, an associated suite of algorithms (mainly focussed on DePFET data analysis), and a viewer program for displaying and processing online or offline detector data streams.
The analysis program encapsulates the applied algorithms in interchangeable objects called 'steps' which produce analysis results. The dependency between results and thus the order of calculation is resolved automatically by the program. Also, up-to-date checking is implemented.
Changes of input parameters or updated results are detected and necessary recalculations are triggered. This way the user can concentrate on data analysis without worrying about the consistency of the results.
The viewer program offers a configurable GUI and process chain, which
allows the user to adapt the program to different tasks such as offline viewing of file data, online monitoring of running detector systems, or performing online data analysis (histogramming, calibration,...).
Because of its modular design, ROAn can be extended easily, e.g. be adapted to new detector types and analysis processes.

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