



# GELATIO: a general framework for modular digital analysis of high-purity Ge detector signals

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GELATIO is a new software framework for advanced data analysis and digital signal processing developed for the GERDA neutrinoless double beta decay experiment. The framework is tailored to handle the full analysis flow of signals recorded by high purity Ge detectors and photo-multipliers from the veto counters. It is designed to support a multi-channel modular and flexible analysis, widely customizable by the user either via human-readable initialization files or via a graphical interface. The framework organizes the data into a multi-level structure, from the raw data up to the condensed analysis parameters, and includes tools and utilities to handle the data stream between the different levels. GELATIO is implemented in C++. It relies upon ROOT and its extension TAM, which provides compatibility with PROOF, enabling the software to run in parallel on clusters of computers or many-core machines. It was tested on different platforms and benchmarked in several GERDA-related applications. A stable version is presently available for the GERDA Collaboration and it is used to provide the reference analysis of the experiment data.

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