



Verification of unfolding technique developed for a scintillator-based calorimeter's signal reconstruction during experiments in laser-plasmas



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Abstract:

With the development of high-intensity and high-repetition-rate laser systems, it has become crucial to be able to detect and to characterize the high-energy products (mainly electrons and photons) from laser-matter interaction in real-time. A novel multi-purpose scintillator-based electromagnetic calorimeter focused on high-energy particle and photon measurements and capable of working on a shot-to-shot basis at high-repetition-rate is being developed at the ELI Beamlines center. A corresponding signal unfolding technique which was ad-hoc developed to reconstruct energies of one or two thermal populations in real-time is described in detail. Preliminary tests of the device and the unfolding technique in cases of photon and electron irradiation at different

experimental facilities are summarized and the results are here presented.





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