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LaBr3 detectors, phototubes, electronics and signal processing: hands-on report about on-going research

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Since a couple of years, the Milano group (INFN and University) is interested in LaBr3 scintillators as detectors for nuclear physics experiments. Ten detectors (3.5" x 8" size, by Saint Gobain) are available and some of them have already been used (Legnaro, GSI, Riken, etc.) with satisfactory results.

A few physical and technical factors practically limiting the intrinsic performance of LaBr3 detectors have been highlighted and at least partially overcome by proper photo-tube selection, design of a dedicated active voltage divider network, acquisition analysis of signals in shape and subsequent digital algorithms.

Design of a dedicated multi-channel digital acquisition system for LaBr3 detectors is in progress.

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