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A Prototype of LaBr₃:Ce in situ Gamma-Ray Spectrometer for Marine Environmental Monitoring

A prototype of LaBr₃:Ce in situ gamma-ray spectrometer for marine environmental monitoring is developed and applied for marine measurement. A 2-inch LaBr₃:Ce scintillator is used in the detector, and a digital pulse process electronics is chosen as the pulse height analyzer. Both Ethernet and RS-485 are implemented as the data and control interface of the system, and a GPS module is also built-in to work with the GIS. From previous Monte Carlo simulation result, it is indicated that the self-activity in LaBr₃:Ce deteriorates the MDAC, but it's still a potential good choice because of its high energy resolution. The preliminary test result of this prototype is introduced in details.

Authors: Dr MA, Hao (Tsinghua University); YI, Hongchang (Tsinghua University); CANG, Jirong (Tsinghua University); Dr ZENG, Ming (Tsinghua University); YUE, Xiaoguang (Tsinghua University); Dr ZENG, Zhi (Tsinghua University)

Presenters: Dr ZENG, Ming (Tsinghua University); Dr ZENG, Zhi (Tsinghua University)

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