乞掲示

理化学研究所原子核グループコロキウム　*2001. 11. 6*

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題目：　Construction of high quality CsI(Tl) scintillation detectors for charged particle spectroscopy

∗ The seminar will be given in *English.*

日時：　2001年　11月　6日 (Tue.)　14:00 –

場所：　RIKEN Main Bldg. 2F Seminar Room

Abstract

The 3rd generation of the Diamant 4 π charged particle detector system (now) for EUROBALL large γ-ray detector facility (then later on for EXOGAM) is just before completion. The seminar gives a historical and scientific overview of the constructional details of the CsI(Tl) scintillator + Si pin photodiode detector elements of the system. Starting with the conventional teflon tape side reflector and Aluminized Mylar front reflector solution, the next step was the application of a balanced combination of white paint and teflon tape on the sides resulting in substantial improvement in performance. The present version replaces teflon with a special multilayer polymer mirror based on giant birefringent optics. This, besides unprecedented high (>70 %) and uniform light collection, energy resolution (< 2 % for 5.5 MeV α, and 8.5 % for 511 keV γ) and low background continuum (> 2000:1 peak to background ratio for 5.5 MeV α), lends themself inherent compactness, ruggedness and ease of fabrication as well. Perspectives for construction of a combined γ+charged particle scintillation detector system with this technique will also be given.

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