CryoScint'07



ID de Contribution: 2

Type: Non spécifié

Extension of the multi-photon counting technique for scintillator characterisation in the milli-kelvin temperature range

lundi 23 avril 2007 15:00 (30 minutes)

The multi-photon counting technique (NIMA, 553 (2005) 522) was essentially modified to investigate scintillation characteristics of crystals at milli-Kelvin temperatures using a 3He/4He dilution refrigerator. The temperature dependence of the scintillation decay time and light yield of CaWO4 were measured down to 20 mK for the first time. The scintillation light yield is found to be invariant below 10 K –a tenet crucial to a decade of cryogenic scintillator experiments, yet previously unproved. The temperature change of the decay kinetic of CaWO4 is analysed in terms of a simple three-level model of the emission centre. The model agrees well with the data over the temperature range (0.02-350 K) investigated, and is used to determine the parameters of the relaxed excited state.

Author: Dr MIKHAILIK, Vitalii (Univ of Oxford)Orateur: Dr MIKHAILIK, Vitalii (Univ of Oxford)