



Pulse Shape Analysis of scintillation signals in CaMoO₄ low temperature scintillating calorimeters

Main author:

CHOI JUNHO

Co-authors:

Choi Seonho, Department of Physics and Astronomy, Seoul National University, Seoul 151-747, Republic of Korea

CHOI JUNHO, Department of Physics and Astronomy, Seoul National University, Seoul 151-747, Republic of Korea Center for Underground Physics,

Danevich Fedor, Institute for Nuclear Research, Kyiv 03680, Ukraine

Fleischmann Andreas, Kirchho-Institute for Physics, Heidelberg University, Im NeuenheimerFeld 227, D-69120 Heidelberg, Germany

Ha Chang Hyon, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Jo Hyon-Suk, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Kang Chan Seok, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Kim Yong-Hamb, Center for Underground Physics, Institute for Basic Science/Korea Research Institute of Standards and Science, Republic of Korea

Kim Yeongduk, Center for Underground Physics, Institute for Basic Science/ Department of Physics, Sejong University, Republic of Korea

Kim So-Ra, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Kim Inwook, Seoul National University/ Center for Underground Physics, Institute for Basic Science, Republic of Korea

Kim Hyelim, Department of Physics, Kyungpook National Univ/ Center for Underground Physics, Institute for Basic Science, Republic of Korea

Kim Hong Joo, Department of Physics, Kyungpook National University, Daegu 702-701, Republic of Korea

Kim Geon-Bo Kim, Seoul National University/ Center for Underground Physics, Institute for Basic Science, Republic of Korea

Kornoukhov Vasily, Institute for Theoretical and Experimental Physics, 25, Bol.Cheremushkinskaya, Moscow 117218, Russia

Lee Minkyu, Korea Research Institute of Standards and Science, Daejeon 305-340, Republic of Korea

Lee Juhee, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Lee Hyejin, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Oh Seung-Yoon, Department of Physics, Sejong University/Center for Underground Physics, Institute for Basic Science, Republic of Korea

Sala Elena, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

So Jungho, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Yoon Young Soo, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

Yoon Wonsik, Center for Underground Physics, Institute for Basic Science, Daejeon 305-811, Republic of Korea

We report pulse shape analysis of scintillation signals with a 200 g CaMoO₄ crystal at low temperatures. The light detector was made with a 2 inch Ge wafer with an MMC readout. Simultaneous measurement of heat (phonon) and scintillation light (photon) was performed at temperatures between 10-40 mK. Light signals from alpha-induced events in the absorber crystal showed a shorter response time than those from beta/gamma/cosmic muons-induced ones. This tendency appeared in the phonon signals that resulted in clear event identification by their pulse shapes. We discuss possible phonon creation mechanisms accompanied by scintillation process.