

Evaluation of LFS continuous scintillation crystals for PET

Friday, 15 June 2018 16:30 (15)

The suitability of monolithic Lutetium Fine Silicate (LFS) continuous scintillation crystals coupled to 64-channel SiPM-TSV matrices for small animal PET is being evaluated by the IRIS group (<http://ific.uv.es/iris>) at IFIC. Three crystals of 25.8x25.8x15mm³ size were tested: LYSO (white coating), LFS white coating (LFS-W) and LFS specular coating (LFS-S). Measurements were done to compare the performance of LYSO and LFS crystals, in coincidence with another LYSO crystal (white coating, 1x1x10mm³) coupled to a 1-channel SiPM, with a ²²Na source. Mean energy resolutions of 14%, 17% and 19% were measured for LYSO, LFS-S and LFS-W respectively. Similar intrinsic spatial resolutions were found for all three crystals in the central region. The position determination algorithm employed is being modified and evaluated for each type of coating. Further measurements with two head detectors of each type in coincidence are also being carried out with a moveable ²²Na source. A ML-MLEM image reconstruction code developed within the group is used to reconstruct the data. Final energy and position resolutions for all three configurations with the source in different positions will be shown.

Primary author(s) : Dr. ROS GARCIA, Ana (IFIC (IFIMED))

Co-author(s) : ETXEBESTE, Ane (IFIC); SOLAZ, Carles (IFIC (Valencia)); LACASTA, Carlos (IFIC-Valencia); MUÑOZ ALBALADEJO, Enrique (IFIC); LLOSA, Gabriela (IFIC-CSIC); Dr. BARRIO, John (Instituto Instrumentacion para Imagen Molecular, i3M-CISC); ROSER MARTÍNEZ, Jorge (Instituto de Física Corpuscular (IFIC)); BERNABEU, Jose (IFIC - Valencia); OLIVER, Josep F. (IFIC (CSIC-UV)); GABARDA, Leticia (Instituto de Física Corpuscular (IFIC/CSIC-UVEG)); BARRIENTOS, Luis (Instituto de Física Corpuscular (IFIC/CSIC-UVEG)); BORJA, Marina (Instituto de Física Corpuscular (IFIC/CSIC-UVEG))

Presenter(s) : Dr. ROS GARCIA, Ana (IFIC (IFIMED)); ETXEBESTE, Ane (IFIC); SOLAZ, Carles (IFIC (Valencia)); LACASTA, Carlos (IFIC-Valencia); MUÑOZ ALBALADEJO, Enrique (IFIC); LLOSA, Gabriela (IFIC-CSIC); Dr. BARRIO, John (Instituto Instrumentacion para Imagen Molecular, i3M-CISC); ROSER MARTÍNEZ, Jorge (Instituto de Física Corpuscular (IFIC)); BERNABEU, Jose (IFIC - Valencia); OLIVER, Josep F. (IFIC (CSIC-UV)); GABARDA, Leticia (Instituto de Física Corpuscular (IFIC/CSIC-UVEG)); BARRIENTOS, Luis (Instituto de Física Corpuscular (IFIC/CSIC-UVEG)); BORJA, Marina (Instituto de Física Corpuscular (IFIC/CSIC-UVEG))