

SACI - A 4 π plastic phoswich array ancillary detector system of a γ -ray spectrometer

Alcántara-Núñez, J. A.

Oliveira, J. R B

Cybulska, E. W.

Medina, N. H.

Rao, M. N.

Ribas, R. V.

Rizzutto, M. A.

Seale, W. A.

Falla-Sotelo, F.

Espinoza-Quiñones, F. R.

Tenreiro, C.

A large solid angle low-Z charged particle detector system was built in order to improve the quality of the identification and selection of evaporation channels for in-beam γ -spectroscopy measurements. The array consists of 11 plastic phoswich telescopes closely packed in a 4 π arrangement and to be used as an ancillary system for the Pelletron Laboratory γ -ray spectrometer. The new system was tested in γ -particle and γ - α -particle coincidence measurements using the $^{27}\text{Al} + ^{16}\text{O}$ and $^{100}\text{Mo} + ^{11}\text{B}$ reactions, at 53 and 43 MeV incident beam energies, respectively. The values for the particle detection efficiency and improvement in the peak to background ratios are considered acceptable for the usefulness of the system. © 2002 Elsevier Science B.V. All rights reserved.