A method for standarization of slow-fast matrices

Joanna Borgensztajn\textsuperscript{1,*}

\textsuperscript{1} Institute of Physics, University of Zielona Góra, Poland

* Corresponding author: J.Borgensztajn@proton.if.uz.zgora.pl

CsI(Tl) scintillators are widely used in nuclear physics measurements for charged particle identification (see for example [1], [2]). The identification techniques are usually based on the pulse shape discrimination method: the light output consists of two independent components and by integrating the signal over properly chosen gates we obtain two quantities called 'fast component' and 'slow component'. The isotopic identification is done by plotting 'slow component' vs. 'fast component'. Unfortunately plots obtained for two (or more) identical detection cells can differ one from another according to individual properties of the crystals and/or coupled electronics. To overcome this difficulty an useful empirical formula describing isotopes branches ($Z \leq 3$) on slow-fast plots is found and presented. That method allows to obtain an automatic procedure for particle identification.

References