

A SOFTWARE PART OF A SYSTEM FOR STABILIZING THE GAIN OF A SCINTILLATION SPECTROMETER

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In measuring prompt γ -ray spectra from the radiative capture of 14 MeV neutrons with a scintillation spectrometer, one is faced with the problem of photomultiplier gain dependence on anode current. The design and performance of a totally computer controlled stabilizing system consisting of a fast (nano-second) pulsed light-emitting diode (LED) and an on line CDC 1700 computer were described in⁽¹⁾, while in this paper we describe the appropriate software.

The software part of the stabilization consists of four programs:

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|---------------------------------------|--------|
| - interrupt routine | - MCA1 |
| - program for stabilization | - MCA2 |
| - program for outputting the data | - MCA3 |
| - program for defining the parameters | - MCA4 |

With these programs it is possible:

- i) to choose the kind of data acquisition (multichannel scaling mode analyses, multichannel analyses with or without stabilization of spectrum, or combinations between these).
- ii) to stabilize the gain of the photomultiplier.
- iii) to control the run of the measurement, since the programs have built-in on-line diagnostics (the system simultaneously records feedback signal, controls the stability of the whole spectrometer, stops the measurement if a sudden change in gain occurs, etc.).

All the parameters which are needed for correct functioning are transferred to the computer via TTY in conversation mode. Programs MCA1 and MCA2 are on line programs while MCA3 and MCA4 are off line ones.

References

1. R.Martinčič, V.Ivković, M.Tiringer, Fizika 7 (1975) 125