

ON A POSSIBLE METHOD FOR MEASURING THE ENERGY OF NEUTRONS IN SHORT TIME EMISSION

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Abstract

We consider the possibility to estimate the energy of the neutrons coming, e.g., from piezonuclear effects (in electrolytic cells or in gas-metal system) using the counts of two detectors, assuming that the emission of neutrons follows a discharge-like behavior and therefore with a very short duration of the emission with respect to the period between two successive emissions. We show that using an ^3He counter as a flat response detector with a constant intrinsic efficiency over a range from tens of keVs to few MeVs and a BF_3 counter having in the same range an exponential intrinsic efficiency, it is possible in principle to write down an equation connecting the ^{10}B microscopical cross section, for $n - \alpha$ reaction, and the counts of these two detectors. The ^{10}B microscopical cross section is related with the energy of the incident neutrons and a tabulate list of these values is available; therefore it can give a way to estimate this energy without using the spectroscopy method because of the very short duration of the emission.