



Contribution ID: 45

Type: **Contributor (Panel Session)**

Estimation of Dead-Time Loss for High Neutron Count-Rates and associated Multiplicity Correction using Multi-Channel List-Mode Data

Tuesday, 6 November 2018 16:31 (1 minute)

Neutron multiplicity counting is a technique widely used in safeguards for the determination of mass of fissile material. The multi-channel list-mode recording of neutron data provides a large amount of data, the analysis of which provides increased possibilities due to the exact time and channel information. Here a new method for dead-time correction in neutron multiplicity counting shall be presented. The enhanced analysis possibilities are used to calculate a second pulse train containing estimations of pulse losses at specific positions. The system calibrates itself by calculating the probabilities of dead-time loss using some basic properties of the Rossi-Alpha distribution. This is done with actual measurement data, provided the amount of data is large enough to result in a good statistics. The histograms of Reals plus Accidentals (R+A) and Accidentals (A) obtained by multiplicity counting are corrected using statistical methods; Singles, Doubles and Triples are calculated later from this corrected R+A and A histograms.

Which "Key Question" does your Abstract address?

TEC3.3

Which alternative "Key Question" does your Abstract address? (if any)

TEC3.4

Topics

TEC3

Primary author: Dr HOLZLEITNER, Ludwig (Europ. Commission, Joint Research Centre)

Co-authors: Dr HENZLOVA, Daniela (Los Alamos National Laboratory); Dr SWINHOE, Martyn (Los Alamos National laboratory); Mr HENZL, Vlad (Los Alamos National Laboratory)

Presenter: Dr HOLZLEITNER, Ludwig (Europ. Commission, Joint Research Centre)

Session Classification: [TEC] Advancements in Instrumentation Data Processing and Analysis

Track Classification: Leveraging technological advancements for safeguards applications (TEC)