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Type: Oral

implementation of NCC analysis algorithms for both current and next generation beta-gamma coincidence based noble gas systems

Wednesday, 26 June 2019 16:45 (15 minutes)

Among the most promising technologies for next generation of noble gas systems are those based on Silicon PIN diodes for beta. It has been demonstrated that the high electron energy resolution of these detectors can significantly improve the discrimination power between Xe-131m and Xe-133m. The first next generation noble gas (NG-NG) systems SAUNA-III and SPALAX- NG developed, respectively, by FOI (Sweden) and CEA (France) are currently undergoing the one –year acceptance testing by CTBTO. Xenon International (USA) and MIKS (Russian federation) are following. Each system has specific design features that improve on current operational systems, which require customized software solutions to process resulting spectral data. In order to ensure smooth integration of NG-NG systems, the IDC initiated a new unified software development project for timely deployment into the production environment. The software is based on the Net Count Calculation (NCC) method. The implementation allows data from all systems to be automatically processed using the same software tool, taking into account inherent specificities. The new software has been rapidly developed and is available already during the acceptance testing period. The contribution presents the key features of the new unified implementation of NCC algorithms, for handling both current and next generation technologies.

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Session Classification: T3.5 Data Analysis Algorithms, Artificial Intelligence, Big Data and Deep Learning

Track Classification: Theme 3. Verification Technologies and Technique Application