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Potential of active neutron interrogation to control fissile materials in “closed”fuel cycle

One of the most important characteristic of a “closed”fuel cycle is a limitation of actinide losses by 0.1% level. The work demonstrates a possibility to control the above parameter via the differential die-away technology in case of high gamma background that may be caused by fission products of spent fuel. The preliminary results obtained by the experimental set-up based on this technology shows that 8 min are enough to detect 0.4 mg 235U inside 68 liters empty container. In experiments we used the ING-07T pulsed neutron generator produced by the VNIIA with 5*10ˆ8 n/s neutron yield. Moreover, neutron spectral analysis can be employed for measuring isotopic composition at any step of a fuel cycle

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