



STUDIECENTRUM VOOR KERNENERGIE
CENTRE D'ETUDE DE L'ENERGIE NUCLEAIRE

Belgian contribution to IPNDV

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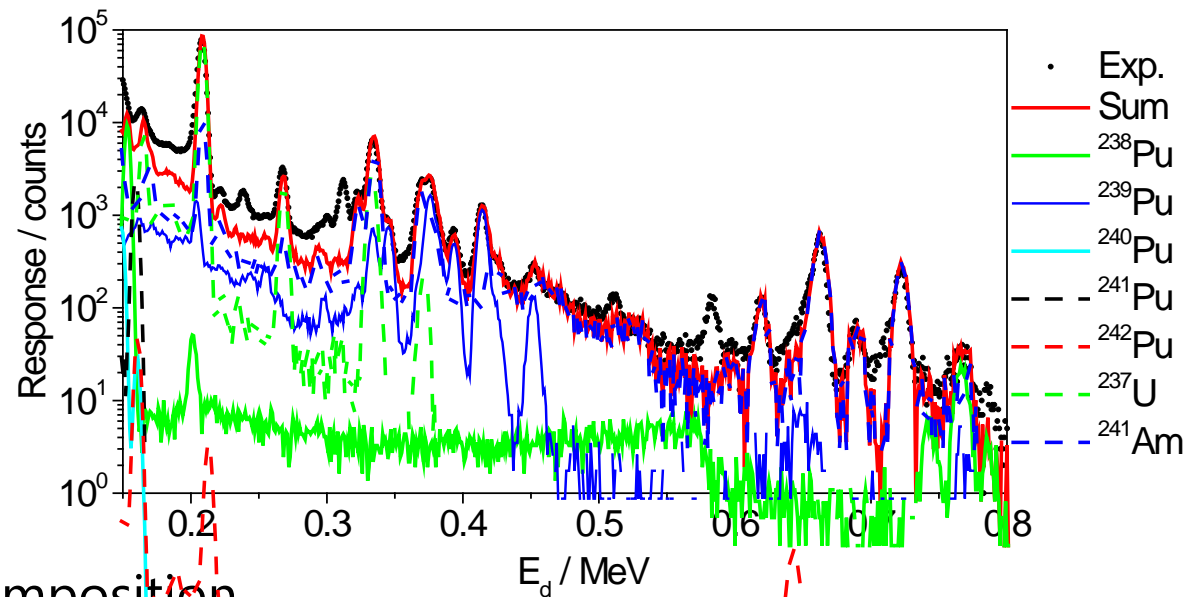
- Testing the Information Barrier (UK-Norway initiative)
- Extending the benchmark set for the Information Barrier
 - Gamma-ray spectra simulations
 - Different materials and design scenarios
 - Existing experimental database from the European Research Development Association (ESARDA)
 - If needed, additional measurements with well-characterised MOX fuel at SCK•CEN

- UK – Norway initiative (<http://ukni.info/>)
- Information Barrier device
 - Analyse gamma radiation from an object
 - Confirm consistency with presence of Plutonium with a high content of ^{239}Pu
 - Potentially sensitive details about the object that could be present in the gamma radiation data not to be revealed



Extending the benchmark set for the Information Barrier

- Detector response simulated with Monte Carlo codes
 - Classical MCNP6/MCNPX
 - MCNP-CP
 - Correct treatment of decay radiation, angular correlation and peak sum



- Variations in
 - Material isotopic composition
 - Design configuration and shielding

Extending the benchmark set for the Information Barrier

- Measurements with known samples containing Pu
- Extended database of spectra being built by members of NDA WG of ESARDA and US labs.

The screenshot shows the ESARDA website interface. The header includes the ESARDA logo and navigation links: CIRCA-BC, NuSaSET, Library, Links, and Contact us. Below the header is a secondary navigation bar with Home, About, Events, Publications, ESARDA Course, Working Groups, and News.

The main content area features a 'Downloads' section with icons for Overview, Downloads, and Submit file. A 'Select Category' dropdown menu is present. Below this is an 'Overview' section with the text 'Number of Categories: 3'. A table lists three categories:

Category	Subcategories	Files
Mox	83	385
Plutonium	78	404
Uranium	217	1120

The sidebar on the right contains a menu with the following items: WG Home, WG Events, WG Documents, WG Member List, and WG Data Library (highlighted in blue). Below the menu is a section titled 'IDB REFERENCE VALUES' with an XLS file icon.

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Extending the benchmark set for the Information Barrier

- Measurements with well characterised MOX fuel pins with different isotopic compositions at SCK•CEN
- MOX fuel
 - Different 5U/Pu ratios
 - Different Pu isotopic composition (^{239}Pu 61% to 96%)

