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Precision beta-spectrum measurement of RaE with semiconductor spectrometers

In this work we present a precision measurement of the beta-spectrum shape for ^{210}Bi (historically RaE) performed with spectrometers based on semiconductor Si(Li) detectors. The studies were performed with spectrometers in target-detector and $4\text{-}\pi$ geometries. The measured transition form-factor could be approximated as $H(W) = 1 + (-0.449 \pm 0.002)W + (0.0553 \pm 0.0004)W^2$ and $H(W) = 1 + (-0.441 \pm 0.002)W + (0.0545 \pm 0.0004)W^2$ for the target-detector and $4\text{-}\pi$ spectrometer respectively that is in good agreement between the two experiments as well as with the previous studies. The form-factor parameter precision has been substantially increased with respect to the previous experimental results.

Mini-abstract

In this work we present a precision measurement of the beta-spectrum shape for ^{210}Bi .

Primary authors: Prof. DERBIN, Aleksandr (Petersburg Nuclear Physics Institute NRC KI); Dr SEMENOV, Dmitry (PNPI NRC KI); Mr UNZHAKOV, Eugeny (PNPI NRC KI); Dr ALEXEEV, Igor (Ioffe Physical-Technical Institute of the Russian Academy of Sciences); Dr DRACHNEV, Ilia (PNPI-NRC KI); Dr KOTINA, Irina (PNPI NRC KI); Ms LOMSKAYA, Irina (PNPI NRC KI); Mr BAKHLANOV, Sergey (PNPI NRC KI); Dr MURATOVA, Valentina (PNPI NRC KI)

Presenter: Dr DRACHNEV, Ilia (PNPI-NRC KI)

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