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Mass calibration of the HPGe detector from nuGeN experiment with dissolved uranium calibration source.

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The aim of the work was to estimate the mass of the HPGe detector similar to one from nuGeN experiment and compare it with the manufacturer's specification. To achieve such purpose measurements with a calibration uranium source were carried out on a low-background experimental setup. In the next place mass estimation were realized by Monte-Carlo simulation made in Geant4.10. Main advantage of this method is the usage of uranium source and its very well-known mass activity of U-238 equal to 12400 Bq/g. Analysis of the data provided by both Geant4 simulations and experimental measurements were compared. As the result of the work good agreement of HPGe's masses have been gotten.

Another valuable result is the fact that the usage of dissolved uranium calibration sources with the known mass may find wide implementation for the mass calibration of HPGe detectors and tests of MC simulations.

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