

Production of ^{83}Rb for calibration sources for dark matter and neutrino mass experiments

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Short-lived isomer $^{83\text{m}}\text{Kr}$ with its discrete electron spectrum has ideal properties to be used in the crucial role of calibration source in low energy experiments like KATRIN or XENON. To ensure smooth long-term operation of these experiments, reliable routines for production of ^{83}Rb , which decays to $^{83\text{m}}\text{Kr}$, have to be developed. We describe the methods developed at the Nuclear Physics Institute of the Czech Academy of Sciences at Rez, where ^{83}Rb sources are created for KATRIN predominantly via the reaction $^{84}\text{Kr}(p,2n)^{83}\text{Rb}$ by colliding accelerated protons with a target filled with natural krypton gas.

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