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The MONUMENT Experiment; Ordinary Muon Capture as a benchmark for $0\nu\beta\beta$ -decay nuclear structure calculations

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Extracting particle physics properties from neutrinoless double-beta ($0\nu\beta\beta$) decay requires a detailed understanding of the involved nuclear structures. Still, modern calculations of the corresponding nuclear matrix elements (NMEs) differ by factors 2-3.

The high momentum transfer of Ordinary Muon Capture (OMC) provides insight into highly excited states similar to those that contribute virtually to $0\nu\beta\beta$ transitions.

The precise study of the gamma particles following the OMC process makes this a promising tool to validate NME calculations, and test the quenching of the axial vector coupling g_A .

The MONUMENT collaboration is performing a series of explorative OMC measurements involving typical $\beta\beta$ decay daughter isotopes such as Se-76 and Ba-136, as well as other benchmark isotopes. In this presentation the experiment carried out at the Paul Scherrer Institute and first results from the beam-time in 2021 will be presented.

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