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【376】Diffusion of muonic atoms in the muX gas cell

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Muonic atom spectroscopy allows for a precise investigation of nuclear properties. At PSI we want to extract the nuclear charge radius of Radium-226 from its muonic x-ray spectrum. To measure the spectrum using only few μg of Radium-226 we have developed an apparatus in which the muons are stopped in a H2/D2 gas mixture and then diffuse towards a disk containing the Radium-226 nuclei. Monte Carlo simulations of the diffusion are used to optimise the cell so that a large fraction of muons reach the target disk. This poster illustrates the simulated physics and the interplay of simulation and measurement.

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