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A Dedicated Calibration Tool for the MEG and MEGII Positron Spectrometer

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The MEG experiment has set the latest upper limit of 5.7×10^{-13} (90\% C.L.) on the branching ratio of the $\mu^+ \rightarrow e^+ \gamma$ decay, making use of the most intense continuous surface muon beam in the world at the Paul Scherrer Institut, Villigen. High resolutions in terms of energy, timing and relative opening angle are needed in the detection of the e^+ and gamma, requiring careful calibration and monitoring of the experimental apparatus. In this poster, a new calibration method involving Mott scattering of a monochromatic positron beam at energies close to the MEG signal energy will be presented. This method provides a powerful tool to study the positron spectrometer's properties in an independent way, allowing for example the extraction of the positron variable resolutions or the alignment of the drift chamber system.

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