

Abstract Submitted
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Dark Photon Searches at MAMI¹ ACHIM DENIG, Johannes Gutenberg University Mainz, A1/MAMI COLLABORATION — The A1 high resolution spectrometer setup at the Mainz Microtron MAMI is ideally suited for Dark Photon searches in the mass range below 1 GeV. We present recent results from a pilot run as well as perspectives for future measurements. The electron beam is scattered on a high Z nuclear target and two A1 spectrometers are measuring e^+e^- pairs which are expected to be emitted from a γ' decay. QED background from Bethe-Heitler processes are giving the major background to the potential Dark Photon signal. We also report on future measurements with the MESA accelerator, which is supposed to cover the Dark Photon mass range below 50 MeV. Together with the MAMI program this will allow to cover the entire Dark Photon parameter range, which may explain the presently observed deviation between Standard Model theory and the direct measurement of the anomalous magnetic moment of the muon.

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