## Progress Towards a High Precision Measurement of the Magnetic Moment of the Antiproton

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The precision spectroscopy of simple antimatter systems and the comparisons to their matter counterparts contribute to our understanding of the matter/antimatter asymmetry. Specifically interesting are experimental studies of systems at an ultra-low absolute energy scale, as the comparison of the magnetic moment of the proton and the antiproton, or the hyperfine structure of hydrogen and antihydrogen. Recently we observed for the first time spin flips with a single trapped proton, which is a major step towards a high precision measurement of the particle's magnetic moment. Based on these results measurements at moderate precision close to the ppm-level were performed in a Penning trap with a superimposed inhomogeneous magnetic field. Applying the method to a single antiproton, the particle's magnetic moment can be improved now by three orders of magnitude, and potentially by a factor of a million using a more elegant double-Penning trap scheme. In my talk I will report on the first observation of spin flips with a single trapped proton, and on our efforts to perform a high precision measurement with a single antiproton in the near future.