

APR12-2012-000404

Abstract for an Invited Paper  
for the APR12 Meeting of  
the American Physical Society

### **Muon capture on the proton – Final results from the MuCap experiment**

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The singlet rate  $\Lambda_S$  of ordinary muon capture (OMC) is the most direct probe for extracting the nucleon's pseudoscalar form factor,  $g_P$ . The experimental determination of  $g_P$  spans a long history including OMC efforts and one experiment using radiative muon capture. However, the situation prior to MuCap was inconclusive due to ambiguities in the interpretation as well as technical challenges. The MuCap experiment was designed to give an unambiguous measurement of  $g_P$ . It uses a negative muon beam stopped in a time projection chamber as an active target filled with ultra-pure hydrogen gas which is surrounded by a decay electron detector. The capture rate is obtained from the difference of the negative muon's disappearance rate in hydrogen and the positive muon's decay rate recently measured to 1 ppm precision by the MuLan collaboration. A first-stage result,  $g_P = 7.3 \pm 1.1$ , has been published in 2007. Since then, the MuCap system underwent some important upgrades before the full statistics were acquired. Two main data sets taken with different TPC gain were analyzed independently, and our final data selection cuts were established. The analysis is completed and all systematic errors have been evaluated. The final result presented in this talk will determine  $g_P$  with four times improved precision compared to OMC results prior to MuCap. It is also immune to the above mentioned ambiguities in the interpretation of former OMC and RMC results. Therefore, it can be compared to the prediction from chiral perturbation theory and provides an important test of QCD symmetries at low energies.