

Abstract Submitted
for the APR08 Meeting of
The American Physical Society

MuCap: From first results to final precision on determining g_P ¹
BRENDAN KIBURG, The University of Illinois at Urbana-Champaign, MUCAP
COLLABORATION — The MuCap collaboration recently reported the muon cap-
ture rate from the hyperfine singlet ground state of the μp atom to be $\Lambda_S = 725 \pm 17.4$
 s^{-1} . The extracted nucleon induced pseudoscalar form factor, g_P , is 7.3 ± 1.1 . Sub-
sequent runs contain 10 times more data and significant improvements have been
made to the experimental apparatus. The aim is to reduce the final uncertainty of
 Λ_S by a factor of three. The isotopic and chemical impurities in the protium target
have been greatly reduced and an electrostatic kicker has been used to increase the
effective data rate threefold. The experiment was upgraded with neutron detectors
and full analog recording using custom built FADC modules for several critical de-
tectors. I will present a description of the experimental upgrades and the status of
the analysis, which with new data will reduce the overall uncertainty of g_P to 7%.

¹This work was supported in part by the U.S. NSF, U.S. DOE, CRDF and NCSA.

Brendan Kiburg
The University of Illinois at Urbana-Champaign

Date submitted: 11 Jan 2008

Electronic form version 1.4