

Abstract Submitted  
for the SES06 Meeting of  
The American Physical Society

**Parity Violating electron scattering from Hydrogen and Helium-4 and Strangeness in the nucleon: Results from HAPPEX-II** BRYAN MOFFIT, College of William and Mary, HAPPEX COLLABORATION, HALL A COLLABORATION — The quark-antiquark pairs that form the sea within the nucleon are well established within quantum chromodynamics. Several recent and ongoing experiments are motivated by determining how this sea, containing contributions from all quark flavors, plays a role in affecting the nucleon's overall properties. Of particular interest is the possible strange quark contribution to the nucleon's electric and magnetic form factors. The recently completed HAPPEX asymmetry measurements take advantage of parity violation in elastic electron scattering to probe the strange quark effects. The measurement using a hydrogen target is sensitive to a linear combination of  $G_E^s$  and  $G_M^s$ , the contribution to the electric and magnetic form factors due to strange quarks, respectively, whereas scattering from a spinless helium target cleanly isolates  $G_E^s$ . The combination of the two measurements therefore allows these form factors to be separately determined. Final results will be presented from the complete data set, obtained in runs in 2004 and 2005, yielding results of unprecedented precision.

Bryan Moffit  
College of William and Mary

Date submitted: 18 Aug 2006

Electronic form version 1.4