

Abstract Submitted
for the SES06 Meeting of
The American Physical Society

Studying neutron stars at Jefferson Lab: the PRex experiment

DAVID S. ARMSTRONG, College of William & Mary, HAPPEX COLLABORATION — One particularly elusive goal of nuclear structure measurements has been the determination of the radius of the neutron distribution in heavy nuclei. This basic property has yet to be cleanly measured, and a precise determination would have important implications for understanding neutron stars, testing nuclear models, heavy-ion collisions and standard model tests from atomic parity violation. An experiment will take place at Jefferson Lab, which will exploit the fact that the Z^0 boson couples primarily to neutrons in order to make a theoretically clean measurement of the neutron radius in ^{208}Pb via parity-violating elastic electron scattering. The anticipated precision on the neutron radius is 1%. The motivation, experimental technique and status of this challenging measurement will be reviewed.

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Date submitted: 15 Aug 2006

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