

Department of Physics and Materials Science

SEMINAR

The real size of a Pb nucleus and its impact on neutron star radius predictions

Ciprian Gal

Mississippi State University



Abstract: The doubly magic lead-208 nucleus has a shell of neutrons extending above the proton-neutron interior. While the mean radius of the protons has been accurately and precisely measured due to its inherent electric charge, the neutron mean radius is much harder to access experimentally. Making use of an electroweak probe we can access the weak charge in the neutrons in longitudinally polarized electron scattering. The PREX experiment used the parity violating electron scattering technique to do just that. In this talk I will give an overview of the technique used, the results and the impact of the data on nuclear structure models including the predictions for possible neutron star radii.

Bio: Dr. Ciprian Gal is an Assistant Research Professor at Mississippi State University in the Department of Physics and Astronomy. Following obtaining his B.Sc. from Jacobs University Bremen in Germany, he obtained a PhD in Physics from Stony Brook University. He currently is the experimental contact for the MOLLER (Measurement of a Lepton-Lepton Electroweak Reaction) experiment at Jefferson Lab, and served as Scientific Coordinator for the Center for Frontiers in Nuclear Science at Stony Brook University until 2021. His research interests include Quantum Chromodynamics, Beyond Standard Model Physics, and the proton spin puzzle.

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Friday Oct. 28th, 3 - 4 PM Manning Hall 201



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