

## Gravitational Structure of the Nucleon

*Friday, 13 December 2024 09:00 (20 minutes)*

The proton's internal structure has been probed through electromagnetic and weak interactions for over 70 years and very precise data on the electromagnetic and electroweak form factors have been determined. About the proton's gravitational structure and mechanical properties, we have very little information albeit theoretical investigations were conducted already in the early 1960's. There was however no way of using gravity to probe the mechanical properties because of the extreme weakness of the gravitational interaction. It took over 3 decades before an indirect way of probing the gravitational structure of particles was proposed and another 25 years before the first experiment-based information about the internal distribution of pressure and forces inside the proton were published in 2018. In this presentation I will briefly review the early findings, discuss the status and projections for the proposed 22 GeV energy upgrade of the CEBAF accelerator at Jefferson Lab.

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**Session Classification:** Summaries and Path Forward