

# The proton gluonic gravitational form factors

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I will be discussing the proton gluonic gravitational form factors, in particular, those extracted from the  $J/\psi$ -007 performed in Hall C at Jefferson Lab. In this experiment, the elastic photoproduction of a small dipole ( $J/\psi$ ) is used to probe the gluonic structure of the proton. The gluons' contribution to the mechanical properties of the proton (mass density, pressure, and shear forces) will be presented in several frames (Breit, lightcone). A comparison to lattice calculations will also be presented. The experimental uncertainties as well as the theoretical caveats of this extraction in a nonperturbative region of photon-nucleon center of mass will be considered and discussed. Projections of these form factors with better statistical precision using the SoLID detector in Hall A will be shown.

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