

Abstract Submitted  
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**Nucleon Neutral Weak Form Factors from AdS/QCD Correspondence** MARK LOHMANN, PRASHANTH JAIKUMAR, Cal State Univ- Long Beach — The Anti-de Sitter/Conformal Field Theory (AdS/CFT) correspondence is an exact correspondence between a 4-dimensional supersymmetric Yang-Mills theory and a theory of quantum gravity in a 5-dimensional AdS space. This correspondence allows one to perform non-perturbative calculations of conformal field theories and has been used to accurately describe aspects of the Quark Gluon Plasma. In order to use this theory to perform non-perturbative Quantum Chromodynamics (QCD) calculations, the conformal symmetry of the AdS metric needs to be broken with either hard wall model which imposes a cutoff at the ultraviolet and inferred energy limits, or a soft wall model in which the AdS metric is multiplied by a dilaton field. This is known as the AdS/QCD correspondence and this approach has been used to calculate Reggie trajectories, form factors, and many other properties of QCD. Using the AdS/QCD correspondence in light front coordinates we attempt to calculate the Dirac and Pauli form factors,  $F_1^Z(Q^2)$  and  $F_2^Z(Q^2)$ , for the neutral weak charge of both the proton and neutron. This will allow us to access the weak form-factor of nucleons in a non-perturbative regime.

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