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Investigating nucleon's elastic, resonance, and DIS structures from hadronic tensor in lattice QCD

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The excitation of nucleons to resonance structures via electromagnetic interactions is crucial for enhancing our comprehension of strong interactions within the realm of quark confinement. Moreover, accurate characterization of various resonance structures is also essential for maximizing the discovery potential of neutrino oscillation experiments. In this presentation, we present preliminary determinations of the nucleon's elastic and transition form factors, utilizing the hadronic tensor. Furthermore, we discuss how the hadronic tensor formalism enables access to x-dependent structure functions and allows for the numerical investigation of higher-twist contributions in deep inelastic scattering.

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