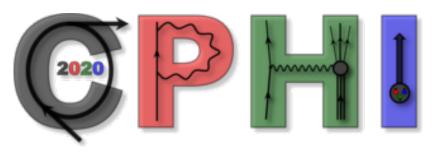
## Correlations in Partonic and Hadronic Interactions - 2020 (CPHI-2020)



Contribution ID: 68 Type: not specified

## **Bound and Free Nucleon Structure**

Wednesday 5 February 2020 17:25 (25 minutes)

Atomic nuclei are made of protons and neutrons, themselves composed of quarks and gluons. Understanding how the nuclear environment impacts the quark-gluon structure of bound nucleons is an outstanding challenge. While the first evidence for such impact, known as the 'EMC effect', was observed over 35 years ago, a generally accepted explanation of the dynamics driving it is still lacking. I will present new high-energy electron-scattering data, that, combined with existing data, indicate that the underlying cause and dynamics of the EMC effect is the structure modification of close-proximity nucleons. A global analysis of deep inelastic scattering (DIS) data on the proton and on nuclei from A = 2 (deuterium) to 208 (lead) presented here, quantify the modification of the structure function of nucleons bound in atomic nuclei (the EMC effect) within the framework of a universal modification of nucleons in short- range correlated (SRC) pairs. It also allow to extracted neutron-to-proton structure function ratio (Fn/Fp) with smaller uncertainties then previous extractions.

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