

Quantum entanglement and parton distribution functions

Calculating Parton Distribution functions(PDFs) analytically has been a long standing problem in Nuclear physics. In this talk, I ll propose a new approach towards solving this problem by borrowing ideas from Quantum information science. In particular, I ll put forward a possible emergent minimum free energy principle based on the quantum entanglement properties of partons making up bound states of strongly interacting theories like QCD. As a preliminary step, I ll discuss the success of this technique in describing the ground state spectrum and PDF of mesons and baryons in 1+1 D gauge theories.

Authors: Dr ASADI, Pouya; VAIDYA, varun

Presenter: VAIDYA, varun

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