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Study the Origin of Proton Mass with Near Threshold J/ψ Production[1] CHAO PENG, Argonne National Laboratory, E12-12-006 COLLABORATION[2], SOLID COLLABORATION[3] — Nucleons compose almost all visible mass in our universe. Yet, our understanding of nucleon mass, especially the QCD trace anomaly's role, is still limited. Production of J/ψ near its threshold provides a unique probe to the nucleon's gluonic structure, enabling access to the dynamic origin of the nucleon mass. The SoLID-J/ψ experiment (JLab E12-12-006) will measure the near-threshold differential J/ψ production cross-section with high statistical precision and obtain crucial input to determine the trace anomaly contribution to the proton mass. I will discuss the projected impact on the trace anomaly term from the SoLID-J/ψ experiment and the complementarity of SoLID-J/ψ with the future EIC experiments.

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