

IITH DISTINGUISHED SEMINAR

UNDERSTANDING THE GLUON – THE "SUPER-GOD PARTICLE" – THAT BINDS US ALL

THE SCIENCE OF THE FUTURE ELECTRON ION COLLIDER

SPEAKER

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(EIC) AT BROOKHAVEN NATIONAL LABORATORY (BNL)



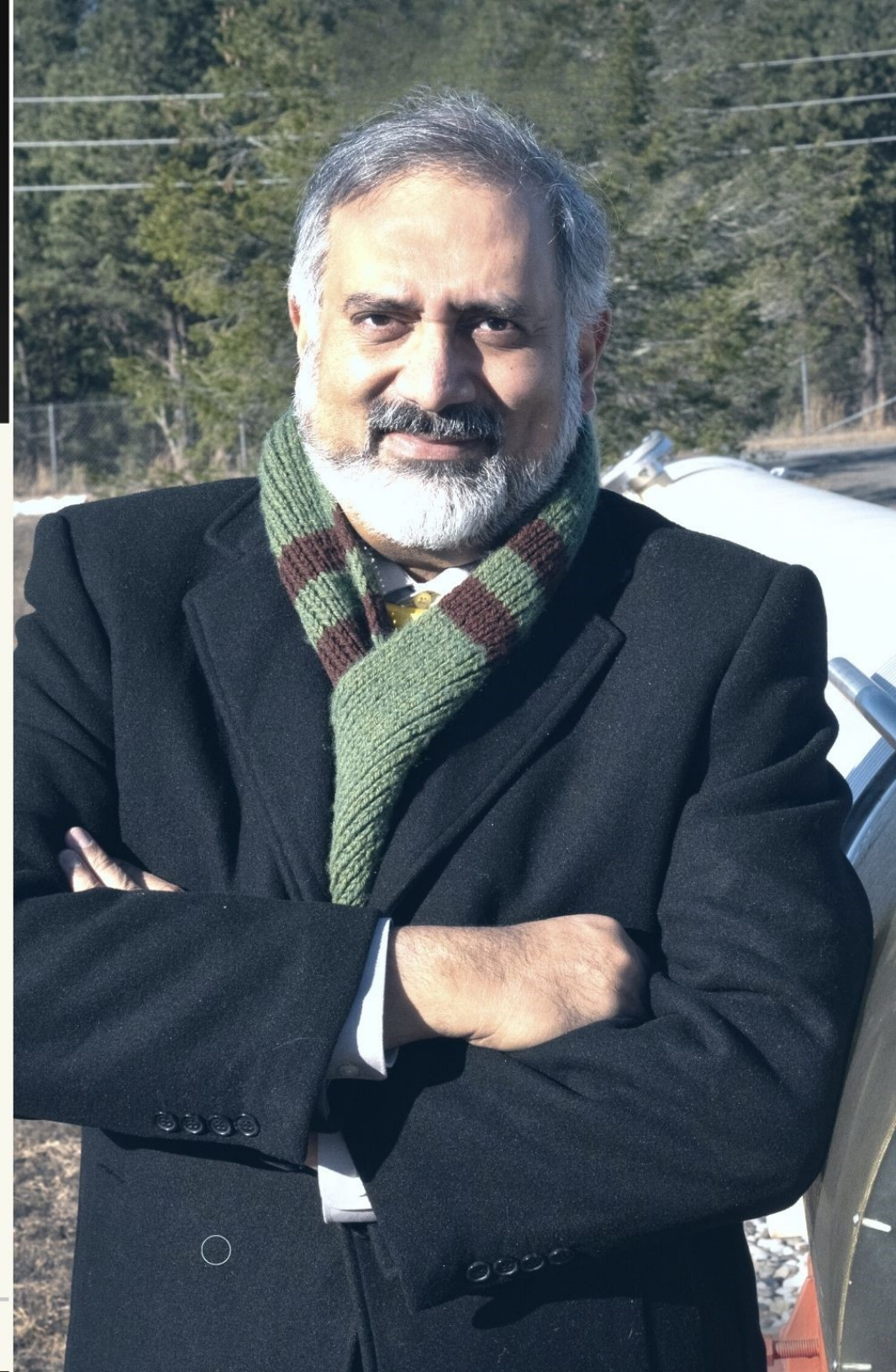
DATE & TIME

14 FEB 2024 (WED)
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VENUE

B-114
IIT HYDERABAD

DEPARTMENT OF PHYSICS



ABSTRACT

Protons and neutrons are the building blocks of the observable universe. However, despite much experimental and theoretical effort over the past century we know surprisingly little about the origin of their intrinsic properties. For example, how do the quarks and gluons — discovered in the 1960's — interact amongst themselves to constitute the "spin" of the proton? How exactly does the proton's mass emerge from those interactions? We don't fully know yet. Further, current understanding of quark-gluon interactions in Quantum Chromodynamics (QCD) — the Standard Model of Strong Interactions — leads to a prediction of a novel state of (saturated) gluonic matter. However its experimental evidence remains elusive. To solve these and other such puzzles in QCD a new collider is being built. In this talk, I will introduce some selected science drivers of the EIC and introduce and talk about how it might address the above fundamental questions.

