

Quantum Chromodynamics (QCD) as a many-body theory: An existential tale in four acts.

Tuesday, 16 July 2019 12:30 (1h 15m)

QCD, our nearly perfect theory of the strong interaction, is also deeply profound because all phenomena are emergent features of the many-body dynamics of the

quark and gluon fields and the vacuum of the theory. This talk on many-body

QCD is organized as a play in four acts:

i) Origins, mysteries, symmetries

ii) The power and the glory of QCD

iii) Surprises from boiling the QCD vacuum in heavy-ion collisions:

a) why the world's hottest fluid, albeit also being its most viscous, flows with almost no resistance

b) a possible unexpected universality between the hottest and coldest fluids on earth

c) What magnetar strength magnetic fields created in heavy-ion collisions may reveal about the topology of the QCD vacuum

iv) Looking ahead to the Electron-Ion Collider: what the ultimate IMAX experience may reveal of QCD's mysteries

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