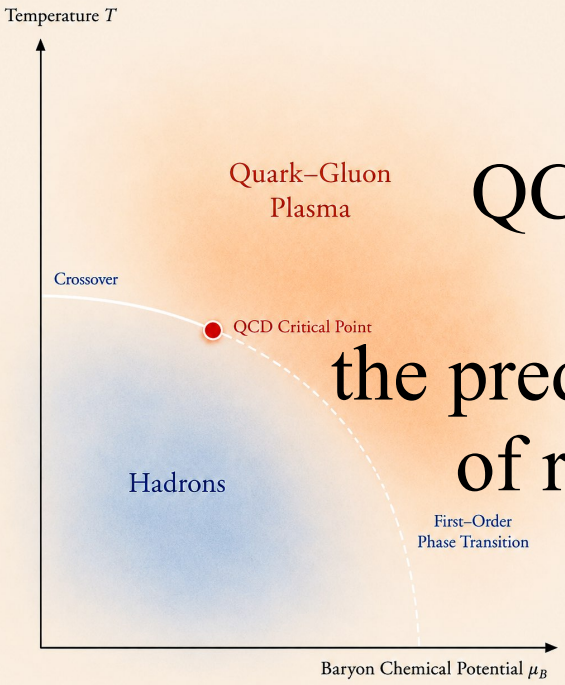
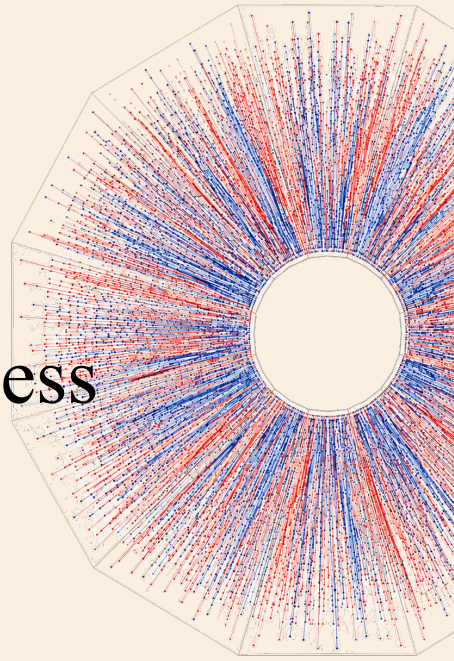
——6th TJR Seminar——



QCD critical point and the predictable randomness of relativistic fluids



Mikhail Stephanov

Professor, University of Illinois Chicago

Friday, June 5, 2026

15:10 − 16:40

H701 Toyonaka Campus

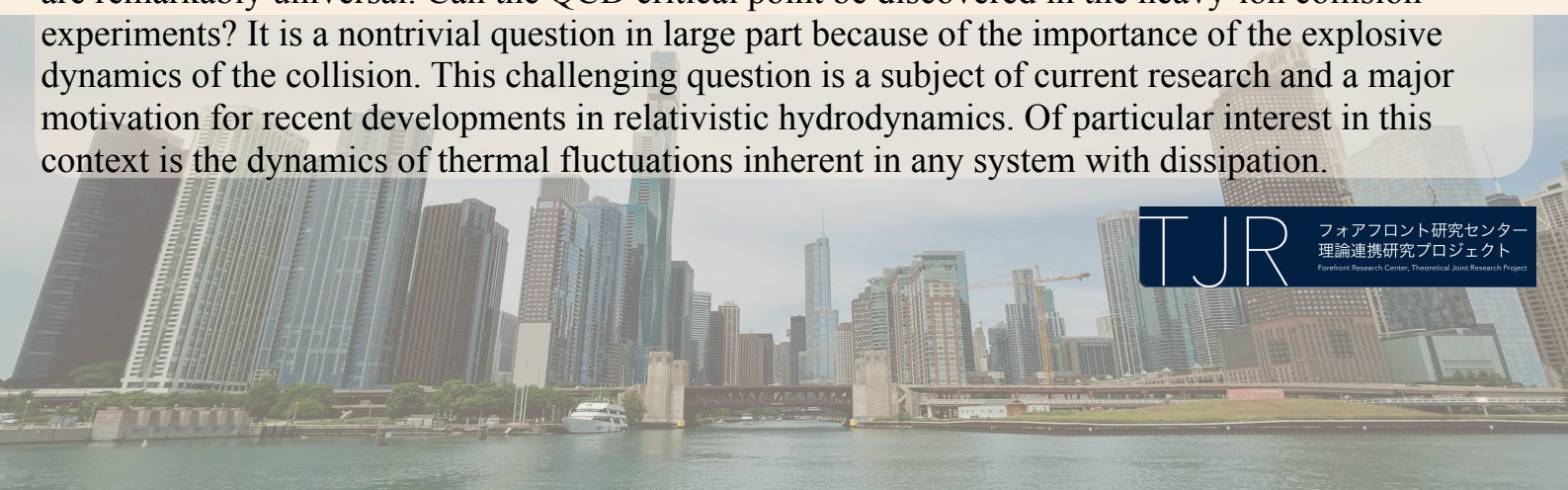
About the Speaker

Mikhail Stephanov is a leading theorist in quantum chromodynamics (QCD), known for pioneering work on critical phenomena and fluctuation observables in heavy-ion collisions. His ideas have strongly influenced experimental searches for the QCD critical point at RHIC.

Abstract

Quantum Chromodynamics predicts a variety of interesting states of matter in which relativity and quantum many-body physics strongly intertwine. Discovering phase transitions between these extreme forms of matter in a laboratory is an unprecedented task. This is the challenge heavy-ion collision experiments are taking up at the Relativistic Heavy-Ion Collider (RHIC) and future facilities.

An intriguing open question is the existence and the location of the QCD critical point. Similar critical points are ubiquitous in earthly substances and the associated fluctuation driven phenomena are remarkably universal. Can the QCD critical point be discovered in the heavy-ion collision experiments? It is a nontrivial question in large part because of the importance of the explosive dynamics of the collision. This challenging question is a subject of current research and a major motivation for recent developments in relativistic hydrodynamics. Of particular interest in this context is the dynamics of thermal fluctuations inherent in any system with dissipation.



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