Contribution ID: **483** Type: **Plenary**

Phase diagram structure of QCD under critical conditions

Wednesday 2 July 2025 10:30 (30 minutes)

We present recent advances in understanding the phase diagram structure of quantum chromodynamic (QCD) matter under extreme conditions—specifically, at large temperatures, high chemical potentials, and strong magnetic fields—in both isotropic and anisotropic environments. These results are derived using the holographic approach, which bridges gauge theories and gravitational duals to explore non-perturbative regimes of QCD. Key findings include the identification of novel phase transitions, critical points, and magneto-thermodynamic behavior under anisotropy. Additionally, we address potential experimental pathways to test these theoretical predictions, emphasizing collider experiments, including possible heavy-ion collision studies at NICA.

Primary author: AREF'EVA, Irina (Steklov Mathematical Institute, Moscow, Russia)

Presenter: AREF'EVA, Irina (Steklov Mathematical Institute, Moscow, Russia)

Session Classification: 0. Plenary

Track Classification: Section 4. Relativistic nuclear physics, high-energy and elementary particle physics.