

HK 23: Invited Talks III

Time: Tuesday 14:00–15:30

Location: HK-H1

Invited Talk HK 23.1 Tue 14:00 HK-H1
Jets in heavy-ion collisions — ●JASMINE BREWER — CERN, Esplanade des Particules 1, 1211 Meyrin Switzerland

Heavy-ion collisions provide unprecedented experimental access to the high-temperature phase of QCD, the quark-gluon plasma, where quarks and gluons are deconfined. Ongoing experimental and theoretical efforts aim to understand the structure and interactions of this novel material. Energetic particles and jets produced in heavy-ion collisions interact with the quark-gluon plasma and can provide unique insight on the structure of the quark-gluon plasma on different length scales. I will give a brief review of the theory and phenomenology of jet modification in heavy-ion collisions.

Invited Talk HK 23.2 Tue 14:30 HK-H1
The initial state of the quark-gluon plasma at the intersection of hadronic and nuclear physics — ●GIULIANO GIACALONE — ITP Heidelberg

Experiments conducted in the world's largest accelerator machines, the BNL Relativistic Heavy Ion Collider (RHIC) and the CERN Large Hadron Collider (LHC), have established that by smashing heavy nuclei at high energy one produces small lumps of a fluidlike substance, namely, the hot state of strong-interaction matter, dubbed the quark-gluon plasma (QGP). The established hydrodynamic paradigm of the QGP have permitted us over the years not only to perform quantitative extractions of the transport properties of this medium from data, but also to obtain a more and more refined understanding of its initial con-

dition. I review the current status of the initial condition of the QGP, emphasizing the outcome of state-of-the-art models and the overall picture that they yield. I discuss the progress made in the definition of observable quantities that offer a specific sensitivity to the physics of the initial state, allowing us to place stringent constraints on the parameters of initial-state Monte Carlo generators from experimental data. Such advances have established, in particular, the importance of having an accurate implementation of the structure of the colliding ions, and the nucleons therein, in such frameworks. The initial state of heavy-ion collisions provides, hence, fertile ground for new interdisciplinary connections involving different aspects of hadronic and nuclear physics across energy scales.

Invited Talk HK 23.3 Tue 15:00 HK-H1
High-precision mass spectrometry with ISOLTRAP at ISOLDE/CERN — ●JONAS KARTHEIN — Massachusetts Institute of Technology, Cambridge MA 02139, USA

This talk summarizes recent results of the ISOLTRAP mass spectrometer located at the radioactive ion beam facility ISOLDE at CERN. First, the latest hardware and software developments regarding the high-precision time-of-flight and Penning trap mass spectrometers will be introduced. Furthermore, recent results probing the edges of existence on the neutron-rich and deficient sides of the nuclear chart around the $Z = 50$ closed nuclear shell will be discussed, highlighting a recent publication in the vicinity of the doubly-magic ^{100}Sn [Nature Physics 17, 1099 (2021)].