Physics Colloquium

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"Hot QCD with sPHENIX at RHIC"

Over the last decades heavy-ion experiments at RHIC and LHC have demonstrated a range of novel QCD phenomena that emerge under conditions of extreme temperature, related to the production of high density matter in form of a Quark-Gluon Plasma (QGP). The observed properties of QGP, such as near-perfect fluidity and extreme opacity, make it unique among all known forms of matter. New efforts, sPHENIX at RHIC and the upgraded LHC experiments, will begin collecting high precision new data in the next year. These data will allow us to investigate the microscopic origins of the fascinating QGP properties. Of particular importance will be the complementarity of RHIC and LHC experiments, covering very different collision energy regimes, and thus allowing us to investigate the temperature dependence of QGP properties. In this talk I will recall some of the main pillars of our current understanding of QGP, and discuss expectations for future new insights from the sPHENIX experiment currently finishing construction.

Prof. Roland obtained his PhD at the University of Frankfurt under Prof. Reinhard Stock, and joined the MIT faculty in 2000 following research positions at MIT, Frankfurt and CERN. He served as physics convener and deputy spokesperson of the PHOBOS experiment at RHIC and as heavy-ion co-convener of the CMS experiment at LHC. Since 2016 he is a co-spokesperson of the sPHENIX collaboration. He is particularly interested in understanding the properties of strongly interacting matter under extreme conditions through correlation measurements and probes such as jets and photons. Among the achievements of his research group, he is particularly proud of the development of the idea of triangular flow, the discovery of flow-like correlations in proton-proton collisions and pioneering measurements using particle jets with the CMS experiment.

Thursday, April 28, at 4:25 PM via Zoom

On the regular schedule that starts at 4:25 PM

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