



Contribution ID: 356

Type: **Contributed talk**

Modeling chiral criticality and its consequences for heavy ion collisions

Monday, 28 September 2015 18:00 (20 minutes)

Considering effective models constructed to be in the same universality class as QCD, we discuss the role of critical fluctuations in the vicinity of the chiral transition.

In recent lattice calculations [Ejiri et al., Phys. Rev. D 80 (2009) 094505] QCD with physical quark masses is found to be in the scaling regime of the O(4) universality class.

We examine the O(4) scaling in the context of effective models at small net baryon density and discuss differences and similarities with lattice QCD results and their consequences.

Moreover, we explore the critical fluctuations near the chiral critical endpoint (CEP), which belongs to the Z(2) universality class, in a chiral effective model and discuss possible signals of the CEP, recently explored in nuclear collision experiments [Adamczyk et al., Phys. Rev. Lett. 113 (2014) 092301]. Particular attention is attributed to the dependence of such signals on the location of the phase boundary and the CEP relative to the hypothetical freeze out conditions in nuclear collisions.

Primary authors: FRIMAN, Bengt (GSI); ALMASI, Gabor (GSI); REDLICH, Krzysztof (University of Wrocław); WOJCIECH, Tarnowski (Jagiellonian University)

Presenter: ALMASI, Gabor (GSI)

Session Classification: Correlations and Fluctuations II

Track Classification: Correlations and Fluctuations