Contribution ID : **115** Type : **Oral Presentation**

Lattice approach to inhomogeneous magnetic fields as probes of QCD thermodynamics

Friday, 10 February 2023 12:30 (15)

Strong magnetic fields occur across the universe in several physical systems. This is the case for magnetars, heavy-ion collisions and the primordial universe. These fields are strong enough to have an impact on the interactions at the QCD scale. In this work, we applied lattice QCD simulations to gain new insights into how QCD thermodynamics is affected by the presence of a background magnetic field. We simulated 2 + 1 flavors of staggered quarks with physical masses and considered both uniform and non-uniform magnetic fields to study the effect of such backgrounds on a series of QCD observables. In particular, we focus on the phase diagram, steady currents and the magnetic susceptibility.

Primary author(s) : Dr BRANDT, Bastian (Bielefeld University); Prof. CUTERI, Francesca (Goethe Universität - Frankfurt am Main); Dr ENDRŐDI, Gergely (Bielefeld University); Dr MARKÓ, Gergely (Bielefeld University); Mr SANDBOTE, Leon (Bielefeld University); Mr MARQUES VALOIS, Adeilton Dean (Bielefeld University)

Presenter(s) : Mr MARQUES VALOIS, Adeilton Dean (Bielefeld University)

Session Classification : Parallel Session IIIA (Venue : Hall 1/Sapphire, Chair : Prof. Saumen Datta)

Track Classification : Strong interactions in electromagnetic fields