Contribution ID: **361**                                    Type: **Oral presentation**

# Dual Polyakov loop model at finite density: phase diagram and screening masses

*Monday, 26 July 2021 13:15 (15 minutes)*

We consider a dual representation of an effective three-dimensional Polyakov loop model for the SU(3) theory at nonzero real chemical potential. This representation is free of the sign problem and can be used for numeric Monte-Carlo simulations. These simulations allow us to locate the line of second order phase transitions, that separates the region of first order phase transition from the crossover one. The behavior of local observables in different phases of the model is studied numerically and compared with predictions of the mean-field analysis. Our dual formulation allows us to study also Polyakov loop correlation functions. From these results, we extract the screening masses and compare them with the large-N predictions.

**Primary authors:** PAPA, Alessandro (Universita' della Calabria & INFN-Cosenza); MENDICELLI, Emanuele (University of York (Toronto, Canada)); BORISENKO, Oleg (Institute for Theoretical Physics, National Academy of Sciences); CHELNOKOV, Volodymyr (Institute for Theoretical Physics, Goethe-University Frankfurt)

**Presenter:** CHELNOKOV, Volodymyr (Institute for Theoretical Physics, Goethe-University Frankfurt)

**Session Classification:** QCD at nonzero Temperature and Density

**Track Classification:** QCD at nonzero Temperature and Density