



Contribution ID: 273

Type: **Parallel**

Meson masses in external magnetic fields with HISQ fermions

Thursday 20 June 2019 14:40 (20 minutes)

We studied the temporal correlation functions for mesons in different channels in (2+1)-flavor QCD in the presence of external magnetic fields at zero temperature. The simulations were performed on $32^3 \times 96$ lattices using the Highly Improved Staggered Quarks (HISQ) action with m_π around 230 MeV. The strength of magnetic fields range in $0 < |eB| \leq 3 \text{ GeV}^2$. We found that the effective mass of π_0 obtained from connected part of Green function decreases as the magnetic field grows. We also studied the meson mass in the vector channel and will discuss the possible relation with superconductivity under a strong external magnetic field.

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Session Classification: Nonzero Temperature and Density

Track Classification: Nonzero Temperature and Density