

Seminar

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Extracting topology from lattice QCD near T_c

We report our study on the properties of the topological structures present in the QCD medium around the critical temperature T_c . We use dynamical domain wall fermion configurations on lattices of size $32^3 \times 8$ and detect the topological structures through the zero modes of the overlap operator. We explicitly show that the properties of the zero modes of the QCD Dirac operator agrees well with that of calorons with non-trivial holonomy. Different profiles of the zero modes are observed, and when we change the boundary condition of the overlap operator in the temporal direction, the zero mode moves to another location. All of this indicates the presence of instanton-dyons in the hot QCD medium around T_c , where the distance between dyons control the shape and extent of the zero modes.

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