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TÍTULO: Phenomenological approaches characterizing the pure-gluon phase transition in QCD

LUGAR: FACULTAD DE CIENCIAS FÍSICAS UCM

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ABSTRACT

Understanding the QCD phase transition is nowadays a fascinating topic since RHIC and LHC have pointed out some evidences of the existence of a new state: the Quark-Gluon Plasma (QGP), a state of matter in which quarks and gluons could move freely.

Up to now, the best theoretical approach to characterize QCD at finite temperature is lattice QCD. Nevertheless, phenomenological approaches are also of great interest: They can provide us a picture of the physical mechanisms underlying the QCD phase transition.

In this seminar, we will try to understand the pure-gluon phase transition within quasiparticle approaches. Under the critical temperature (T_c) of deconfinement, a Hadron Resonance Gas model (HGR) will be used. Well above T_c , we will characterize the QGP equation of state with an ideal gas framework. Between these two regions, a project of including 2-gluon interactions in a non-perturbative way is in progress.