

Quark Confinement and the Hadron Spectrum XI



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Models of Quark-Hadron Matter and Compact Stars

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Phenomenological approaches to Quantum Chromodynamics covering the region from low to high temperature and/or density have to address the problem that the effective degrees of freedom change drastically from hadrons to quarks and gluons.

We study this situation with a unified description of hadronic and quark matter allowing for cross-over as well as first or second-order phase transitions. As further benefit of such an approach a quantitatively satisfactory description of nuclear ground state matter as well as nuclear and hypernuclear properties can be achieved.

We apply the model to neutron stars and consider potential constraints on star properties arising from heavy-ion physics and lattice gauge results in relation with the observation of 2 solar mass stars.

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