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Effects of strong magnetic fields on quark matter and neutral meson properties within nonlocal chiral quark models

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We study the behavior of strongly interacting matter under a strong external magnetic field in the context of chiral quark models that include nonlocal interactions. In particular, we analyze the influence of a constant magnetic field on the chiral quark condensates at zero and finite temperature, studying the deconfinement and chiral restoration critical temperatures and discussing the observed "magnetic catalysis" and "inverse magnetic catalysis" effects. In addition, we analyze in this framework the effect of the magnetic field on the properties of π^0 and σ mesons. The predictions of nonlocal chiral quark models are compared with results obtained in lattice QCD.

Summary

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