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Influence of quark masses and strangeness degrees of freedom on inhomogeneous chiral phases

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In most studies of the QCD phase structure at nonzero temperature and density it is assumed that the chiral condensate is constant in space. Allowing for spatially modulated condensates on the other hand, it was found in various model calculations that in certain regions of the phase diagram such inhomogeneous condensates are favored over homogeneous ones. For instance it was shown that in a standard NJL model the would-be first-order phase boundary between the homogeneous chirally broken and restored phases is entirely covered by an inhomogeneous phase which ends exactly at the chiral critical point. In this talk we will discuss how this result is altered by model variations, like vector interactions, nonzero quark masses and strange quarks. In particular we will investigate whether by variation of external parameters the inhomogeneous phase can be moved closer to the temperature axis, making it potentially accessible to lattice QCD simulations.

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