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The nature of the Roberge-Weiss Transition in N_f=2 QCD with Wilson Fermions on N_t=6 lattices

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The chiral and deconfinement phase transitions at zero density for light and heavy quarks, respectively, have analytic continuations to imaginary chemical potential. At some critical imaginary chemical potential, they meet the high temperature Roberge-Weiss transition between adjacent Z3 sectors. For light and heavy quarks, where the chiral and deconfinement transitions are first order, the transition lines meet in a triple point. For intermediate masses chiral or deconfinement transitions are crossover and the Roberge-Weiss transition ends in a second order point. At the boundary between these regimes the junction is a tricritical point, as shown in studies with N_f=2,3 flavors of staggered and Wilson quarks on Nt=4 lattices. Employing finite size scaling we investigate the nature of this point as a function of quark mass for N_f=2 flavors of Wilson fermions with a temporal lattice extent of Nt=6. In particular we are interested in the change of the location of tricritical points compared to our ealier study on Nt=4.

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