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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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