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Finite temperature phase transition with two flavors of improved Wilson fermions

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The critical temperature is computed and the nature of the QCD finite temperature phase is studied for $N_f = 2$ dynamical flavors of nonperturbatively improved Wilson fermions. The new simulations are performed on lattices $40^3 \times 14$ with lattice spacing and pion mass at the transition close to 0.08 fm and 200 MeV, respectively. We find the deconfinement and chiral phase transitions to coincide within numerical precision. Our results are in broad agreement with a second order phase transition in the chiral limit. The critical temperature at the physical quark mass is found to be about 170 MeV.

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talk

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