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Quark mass dependence of quarkonium properties at finite temperature

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Quarkonium properties at finite temperature are studied with various quark masses in the range between those for the charm and bottom quarks. Our simulations are performed in quenched QCD with the O(a)-improved Wilson quarks on large and fine isotropic lattices at temperatures between about $0.7T_c$ and $1.4T_c$. At both vanishing and finite momenta we discuss temperature and quark mass dependence of quarkonium correlation functions and related physical quantities: the quark number susceptibility and the heavy quark diffusion constant.

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