Speeding up the HMC algorithm: Some new results

Presenter: Martin Hasenbusch

Martin Hasenbusch

Abstract: We study the performance of the HMC algorithm using an improved pseudo-fermion action. We consider lattice QCD with two degenerate flavours of clover-improved Wilson fermions and Wilson gauge action. We have simulated a $24^3 \times 48$ lattice at $\beta = 5.2$ with $c_{sw} = 2.0171$ at $\kappa = 0.135$ and $\kappa = 0.1355$ corresponding to $m_{PS}/m_V \approx 0.699$ and 0.579. In particular we shall discuss the effect of a third pseudo-fermion field, the interplay of the improved pseudo-fermions with different preconditioning schemes and also comment on the relation of the solver with the reversibility of the integrator.