

DYNAMICAL SIMULATIONS

Past experience:

- Examine staggered fermion runs on $16^3 \times 32$ and $24^3 \times 32$ volumes, $m=0.01, 0.015$ and 0.02 .
- $\text{Cost} = 1.4 \cdot 10^{11} \frac{L^3 T}{(fm)^4} \left(\frac{m_\rho}{m_\pi}\right)^5 \left(\frac{1}{a \text{ GeV}}\right)^7 \frac{\text{flops}}{\text{config}}$
- To duplicate CP-PACS quenched results:
 $a^{-1} = 3.96 \text{ GeV}, 64^3 \times 112, m_\pi/m_\rho = 0.4, 150 \text{ configs.}$
 $\approx 200 \text{ Teraflops} \cdot \text{year}$

Physics Targets:

- QCD Thermodynamics. [Improved fermions might show a much more interesting small mass region?]
- Hadron spectrum in the chiral limit. [Such a study might focus on $m_\pi \leq 0.4m_\rho$?]
- Permit charm simulations with correct α_s running. [Wrong $\alpha_s(\mu)$ introduces obvious 10-20% error in essential charm contribution to $K \rightarrow \pi\pi$.]
- Control zero modes in small volume simulation. [Enhanced zero modes make quenching more pathological for improved fermions.]

Much of 100 Teraflops could be expended using DW/overlap fermions.