## **LATFOR** Initiative, Computers

#### Karl Jansen





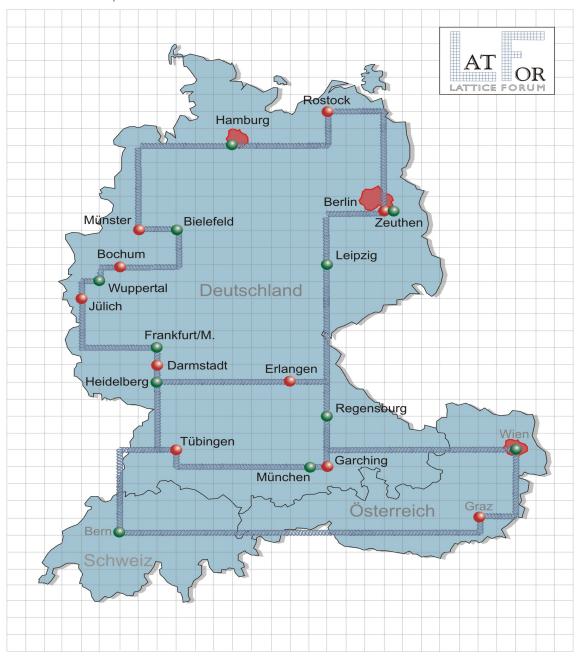
Organisation: Lattice Forum (LATFOR)



- Initiative of German Lattice Physicists
   with associated countries Austria and Switzerland
- Coordination of physics programme
- Common uasge of Software and raw data → Datagrid
- Requirement of Supercomputer resouces

# http://www-zeuthen.desy.de/latfor

coordination at NIC/DESY Zeuthen



### Major reasearch areas within LATFOR

- ab initio calculations of QCD with dynamical quarks
  - Hadron spectrum and structure functions
  - fundamental parameters of QCD
  - B-physics
- matter under extreme conditions
  - QCD thermodynamics
  - QCD at non-vanishing baryon density
- Non-QCD physics
  - Electroweak standard model
  - Supersymmetry
- Conceptual developments
  - exact chiral symmetry on the lattice
  - Twisted mass lattice fermions
  - algorithm development

- LATFOR Computer Resources
  - → apeNEXT: DESY 3 TFlops
  - → National Supercomputer Centers:
    FZ Jülich 10TFlops, IBM Regatta, BGL
    plans of upgrade to O(100) Teraflops
    HLRN (Berlin, Hannover) 7TFlops IBM Regatta
    HLRS (Stuttgart) 1.4TFlops NEC/CRAY
    LRZ (München) 2TFlops Hitachi
    upgrade to 30 teraflops (2006), will go to 69 teraflops (2007)
  - → University of Wuppertal: cluster with 1024 Opteron processors
  - → University of Bielefeld: 5 TFlops apeNEXT
  - → Smaller clusters at e.g. HU, Münster, DESY
  - → small QCDOC at Regensburg

### apeNEXT

- **□** Prototype Installation:  $\rightarrow$  1+1 racks at INFN+DESY = 1.6 Tflops
- **□** Status:
  - prototypes are assembled
  - larger installation have begun to be installed
  - Clock frequency
  - First physics codes running as hardware tests
  - 10 TFlops will come to INFN
     (2 racks for CNRS at Rome)
  - 3 TFlops at DESY, 5 TFlops at Bielefeld
  - C-compiler under development



