

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 usage of Software and raw data → Datagrid
- Requirement of Supercomputer resources

<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:** → 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

