

Resource Requirements

“Both the proposers and the DOE should recognize that this is an endeavor that is not likely to be exhausted in 4 years or even in 10.”

The Wilczek Committee

- Infrastructure
- Scientific Personnel

SciDAC Grant

- SciDAC Program supports software development, inter-disciplinary collaborations, and hardware prototyping.
- Approximately \$2 M per year for 2001-2003.
- Grant funds approximately 9 FTE.
- Approximately 75% for software effort.
- Proposal for two year extension in preparation.

Proposed Infrastructure Budget for 2004-2006

Item	2004 Costs	2005 Costs	2006 Costs
QCDOC Hardware	\$10,000		
Cluster Hardware		\$8,500	\$8,500
QCDOC Operations	616	616	634
Cluster Operations	270	870	896
Manager	240	247	254
Oversight Com.	39	40	41
Total	\$11,165	\$10,273	\$10,325
SciDAC Budget	2,201	2,423	2,496
Grand Total	\$13,366	\$12,696	\$12,821

All figures are in thousands of dollars.

Lattice Gauge Theory Personnel

Country	Senior Scientists	Postdocs	Graduate Students
United States	55	32	45
Germany	25	60	
Italy	30	30	20
Japan	40	20	40
United Kingdom	18	11	13

The major personnel issue in the United States is the paucity of junior faculty positions for excellent young lattice gauge theorists.

International Hardware Plans

- Germany: 12 teraflop/s sustained apeNEXT computers in 2004.
- Italy: Several teraflop/s sustained apeNEXT computers in 2004.
- Great Britain: 5 teraflop/s sustained QCDOC in 2004.
- Japan
 - Currently sustain approximately 1 teraflop/s.
 - Beginning to use the Earth Simulator.
 - Support for 5 teraflop/s RBRC QCDOC.
 - KEK: Dedicated 10–20 teraflop/s machine in 2006.
 - CCP: Dedicated 10–20 teraflop/s machine in 2007.

Funding Opportunities

● Hardware

- Lattice gauge theorists are among the largest users of the NSF PACI Program.
- The NSF could enable much more science at a far lower cost by direct support of the lattice gauge theory community's infrastructure effort.

● Software and Grid Activities

- Our community software effort appears to be well suited for the new NSF Computational Physics Program.
- Our plans for use of the grid fit well with the major NSF initiatives in this area.

- Scientific Personnel

- The infrastructure effort will enable exciting science, thereby attracting excellent young people to the field.
- Funding for posdocs and graduate students is critical.
- Junior faculty positions are critical.