

The Secret Life of Quarks:

National Computational Infrastructure for Lattice Gauge Theory

SciDAC-2 Closeout Report: University of California, Santa Barbara Component

Lead Institution: Fermi National Accelerator Laboratory
Batavia, IL 60510

This Institution: University of California, Santa Barbara
Santa Barbara, California

Santa Barbara Award Number: DE-FC02-06ER41437

Santa Barbara Principal Investigator: Robert Sugar
Department of Physics
University of California
Santa Barbara, CA 93106
Email: sugar@physics.ucsb.edu
Phone: 805-893-3469

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Office of Science Program Contact: Lali Chatterjee

The objective of this grant was to develop algorithms and software for the numerical study of quantum chromodynamics (QCD) and quantum field theories of interest for the understanding of physical phenomena that go beyond the standard model of high energy physics. High energy physicists, nuclear physicists and computer scientists at thirteen institutions were involved in this effort. The overall structure and accomplishments of the project are described in the project-wide final report, which will be submitted by Dr. Paul Mackenzie of the Fermi National Accelerator Laboratory, who is the lead principal investigator. This report describes the activities at the University of California, Santa Barbara (UCSB).

When this project began on September 15, 2006, Robert Sugar, the UCSB principal investigator, was the chair of the USQCD Executive Committee and the lead PI of the project. In these positions, he provided overall leadership and coordination for the project. He stepped down as chair of the Executive Committee and as lead PI of the project on January 1, 1999, and was replaced in both positions by Dr. Mackenzie. However, he continued to be strongly involved in the project as a member of the USQCD Executive Committee and as a co-PI of the project.

UCSB administered travel funds for participants in the project who were at institutions that did not receive SciDAC funding. The purposes of these trips were to enable collaborative research on algorithms and software, and to report on algorithm and software development, and on scientific results obtained from it, at scientific meetings. These funds were also used to support travel related to the project by co-PIs Stephen Sharpe, University of Washington and Julius Kuti, University of California, San Diego, whose institutions did not receive funding under the grant. Finally, they were used to support travel by Dr. Sugar in connection with the project. A total of 126 trips were supported. Expenditures on these trips consumed 95% of the total direct costs to the grant. The remaining 5% of direct costs went for supplies and expenses. Because so much of the expenditures were for travel, an off-campus indirect cost rate of 26% was used.

Unexpended funds: \$119.58