

# Publications of the MILC Collaboration

## Publications in or Submitted to Refereed Journals

1. QCD thermodynamics with two flavors at  $N_f = 6$ , C. Bernard, M.C. Ogilvie, T.A. DeGrand, C. DeTar, S. Gottlieb, A. Krasnitz, R.L. Sugar, and D. Toussaint, Phys. Rev. D **45**, 3854, (1992).
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4. Finite-size and quark mass effects on the QCD spectrum with two flavors, C. Bernard, T.A. DeGrand, C. DeTar, S. Gottlieb, A. Krasnitz, R.L. Sugar, and D. Toussaint, Phys. Rev. D **48**, 4419, (1993).
5. The nature of the thermal phase transition with Wilson quarks, C. Bernard, T.A. DeGrand, C. DeTar, S. Gottlieb, A. Krasnitz, R.L. Sugar, and D. Toussaint, Phys. Rev. D **49**, 3574, (1994).
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10. Properties of the  $a_1$  Meson from Lattice QCD, M. Wingate, T.A. DeGrand, S. Collins, U.M. Heller, Phys. Rev. Lett. **74**, 4596, (1995).
11. Two-Flavor Staggered Fermion Thermodynamics at  $N_f = 12$ , C. Bernard, T. Blum, C. DeTar, S. Gottlieb, U.M. Heller, J. Hetrick, K. Rummukainen, R.L. Sugar and D. Toussaint, Phys. Rev. D **54**, 4585, (1996).
12. Improving flavor symmetry in the Kogut-Susskind hadron spectrum, T. Blum, C. DeTar, Steven Gottlieb, U.M. Heller, J. Hetrick, K. Rummukainen, R.L. Sugar, D. Toussaint, and M. Wingate, Phys. Rev. D **55**, 1133, (1997) [arXiv:hep-lat/9609036].
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14. The equation of state for two flavor QCD at  $N_f = 6$ , C. Bernard, T. Blum, C. DeTar, Steven Gottlieb, U.M. Heller, J. Hetrick, L. Karkkainen, K. Rummukainen, R.L. Sugar, D. Toussaint, and Matthew Wingate, Phys. Rev. D **55**, 6861, (1997) [arXiv:hep-lat/9612025].
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17. Quenched hadron spectroscopy with improved staggered quark action, C. Bernard, T. Blum, T.A. DeGrand, C. DeTar, S. Gottlieb, U.M. Heller, J. Hetrick, C. McNeile, K. Rummukainen, R.L. Sugar, and D. Toussaint, *Phys. Rev. D* **58**, 014503, (1998) [arXiv:hep-lat/9712010].
18. Continuum limit of lattice QCD with staggered quarks in the quenched approximation—a critical role for the chiral extrapolation. C. Bernard, T. Blum, C. DeTar, S. Gottlieb, U.M. Heller, J. Hetrick, C. McNeile, K. Rummukainen, R. Sugar, and D. Toussaint, *Phys. Rev. Lett.* **81**, 3087, (1998) [arXiv:hep-lat/9805004].
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25. Scaling tests of the improved Kogut-Susskind quark action, C. Bernard, T. Burch, T.A. DeGrand, C. DeTar, S. Gottlieb, U.M. Heller, J. Hetrick, K. Orginos, R. Sugar and D. Toussaint, *Phys. Rev. D* **61**, 111502, (2000) [arXiv:hep-lat/9912018].
26. The static quark potential in three flavor QCD, C. Bernard, T. Burch, T.A. DeGrand, C. DeTar, S. Gottlieb, U.M. Heller, J. Hetrick, K. Orginos, R. Sugar and D. Toussaint, *Phys. Rev. D* **62**, 034503, (2000).
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31. Chiral Logs in the Presence of Staggered Flavor Symmetry Breaking, C. Bernard, *Phys. Rev. D* **65**, 054031, (2002) [arXiv:hep-lat/0111051].
32. Lattice Calculation of Heavy-Light Decay Constants with Two Flavors of Dynamical Quarks, C. Bernard, S. Datta, T. DeGrand, C. DeTar, Steven Gottlieb, Urs M. Heller, C. McNeile, K. Orginos, R. Sugar and D. Toussaint, *Phys. Rev. D* **66**, 094501, (2002) [arXiv:hep-lat/0206016].
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37. Hybrid configuration content of heavy S-wave mesons, Tommy Burch and Doug Toussaint (The MILC Collaboration), Phys. Rev. **D68**, 094504 (2003) [arXiv:hep-lat/0305008].
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47. Staggered chiral perturbation theory and the fourth-root trick: C. Bernard, Phys. Rev. D **73** 114503 (2006) [arXiv:hep-lat/0603011].
48. Comment on ‘Flavor extrapolations and staggered fermions’: C. Bernard, M. Golterman, Y. Shamir and S. Sharpe, Phys. Lett. B **649**, 235 (2007) [arXiv:hep-lat/0603027].

49. Observations on staggered fermions at non-zero lattice spacing, C. Bernard, M. Golterman and Y. Shamir, Phys. Rev. D **73** 114511 (2006) [arXiv:hep-lat/0604017].
50. Heavy-Light Semileptonic Decays in Staggered Chiral Perturbation Theory, C. Aubin and C. Bernard, Phys. Rev. D **76**, 014002 (2007) [arXiv:0704.0795].
51. QCD equation of state with 2+1 flavors of improved staggered quarks, The MILC Collaboration: C. Bernard, T. Burch, C. DeTar, Steven Gottlieb, L. Levkova, U.M. Heller, J.E. Hetrick, R. Sugar, D. Toussaint, Phys. Rev. D **75** 094505 (2007) [arXiv:hep-lat/0611031].
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### Publications in Conference Proceedings

1. Studying quarks and gluons on MIMD parallel computers, C. Bernard, M.C. Ogilvie, T.A. DeGrand, C. DeTar, S. Gottlieb, A. Krasnitz, R.L. Sugar, and D. Toussaint, International Journal of Supercomputer Applications, **5**, 61, (1991).
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## CURRICULUM VITAE

### Claude Bernard

#### PERSONAL:

Born September 21, 1950 in Queens New York

#### EDUCATION:

A.B. Harvard College 1972, *summa cum laude*

Ph.D. Harvard University 1976

#### PRESENT POSITION:

Professor of Physics, Washington University (St. Louis)

#### ADMINISTRATION:

Deputy Director of the Institute for Theoretical Physics, Santa Barbara, 1988-90.

#### HONORS:

Kemper Teaching Award, Washington University, 1999

Fellow of the American Physical Society (elected Nov., 1998)

Alfred P. Sloan Foundation Fellow, 1980-84

UCLA Distinguished Teaching Award, 1983

National Science Foundation Graduate Fellowship, 1972-75

Sophia Freund Prize (awarded to highest ranking Harvard College Senior), 1972

#### RECENT PROFESSIONAL SERVICE:

International Advisory Committee, *Chiral Dynamics* 2009

Editorial Board, PMC Physics A (2007 – )

International Advisory Committee, *Lattice* 2006, 2000, 1995, 1993, 1992, 1989

NSF Site Review Panel for CESR-c/CLEO-c (Cornell University, March 5-6, 2002)

International Advisory Committee, *Scottish Universities Summer School on Heavy Flavour Physics* (St. Andrews, Scotland, August, 2001)

## CURRICULUM VITAE

**Carleton DeTar**

### PERSONAL:

Born July 14, 1945

### EDUCATION:

A.B. Chemistry and Physics, Harvard College 1966  
Ph.D. Physics, University of California, Berkeley 1970

### PRESENT POSITION:

Professor of Physics, University of Utah

### ADMINISTRATION:

Associate Chair, Department of Physics, University of Utah, 1983-89, 1998–2005.

### RECENT PROFESSIONAL SERVICE:

International Advisory Committee, “Lattice 2002”  
Nominating Committee for APS DCOMP Fellows  
Organizing Committee for International Symposium, “Lattice 2006”

### HONORS AND FELLOWSHIPS:

Fellow of the American Physical Society, 1999.  
Awarded AB summa cum laude Harvard University 1966  
Elected to membership in Phi Beta Kappa  
A.P. Sloan Foundation Fellow, 1973-77

## CURRICULUM VITAE

**Steven A. Gottlieb**

### PERSONAL:

Born January 28, 1952

### EDUCATION:

A.B. Mathematics and Physics, Cornell University 1973

M.A. Physics, Princeton University 1975

Ph.D. Physics, Princeton University 1978

### PRESENT POSITION:

Professor of Physics, Indiana University

### AWARDS AND HONORS:

Fellow of the American Physical Society, 1994

Indiana University Outstanding Young Faculty Award, 1989

Summer Faculty Fellowship for Instructional Technology Development, 1989

Department of Energy Outstanding Junior Investigator, 1986-91

Indiana University Summer Faculty Fellowship, 1986

NSF Graduate Fellow, 1973-76

Awarded A.B. *summa cum laude* in Physics and with Distinction in All Subjects

Elected to Phi Beta Kappa, 1972

### RECENT PROFESSIONAL SERVICE:

Editorial Board Member, *Computing in Science & Engineering*, 2006–

Associate Editor in Chief, *Computing in Science & Engineering*, 2007–

Divisional Associate Editor, *Physical Review Letters*, 2003–

arXiv Advisory Board Member, 2004–

Reviewer, *The Future of Supercomputing*, National Research Council, 2004

Chair, Lattice QCD Oversight Committee, 1999–2005

International Advisory Committee, *Lattice '04, '03, '95, '94, '91*

National Organizing Committee, *Lattice '93*

Joint NCSA/PSC Peer Review Board, 1996–97

National Resource Allocation Committee/Alliance Allocation Board, 1997–2000

PACI Program Review Committee, 1998, 1999

American Physical Society, Division of Computational Physics, Executive Committee, 1996–1999

American Physical Society, Division of Computational Physics, Program Committee, 1999–2004

American Physical Society, April Meeting, Program Committee, 2003–2004

American Physical Society, Division of Computational Physics, Nominating Committee, 2007–2008

## CURRICULUM VITAE

**Urs. M. Heller**

### PERSONAL:

Born June 7, 1953

### EDUCATION:

Diploma in Physik, Eidgenössische Technische Hochschule in Zürich, Switzerland, 1977  
Ph.D. Physics, Rutgers University 1981

### PRESENT POSITION:

Associate Editor, Physical Review D, American Physical Society, Ridge, NY

### AWARDS AND HONORS:

Mutual Educational Exchange Grant, sponsored by the Department of State, 1977–1978  
Fulbright Travel Grant, 1977, 1981

### RECENT PROFESSIONAL SERVICE:

Co-organizer of the ECT\* International Meeting “Non-Perturbative Aspects of QCD,” July 8–19, 2002, Trento, Italy.  
Served on panel for the triennial review of NSF’s Partnerships for Advanced Computational Infrastructure (PACI) Program, 2002.  
Co-organizer of the NATO Advanced Research Workshop “Lattice Fermions and Structure of the Vacuum,” 1999.  
Co-organizer of the Aspen Summer workshop “Dirac Spectrum and Topology on the Lattice,” 1999.  
International Advisory Committee, *Lattice* ’93.  
Local Organizing Committee, *Lattice* ’90.

## CURRICULUM VITAE

**Robert L. Sugar**

### PERSONAL:

Born August 20, 1938 in Chicago, Illinois

### EDUCATION:

A.B. Physics, Harvard University 1960, *summa cum laude*

Ph.D. Physics, Princeton University 1964

### PRESENT POSITION:

Research Professor, University of California, Santa Barbara

### ADMINISTRATION:

Deputy Director of the Institute for Theoretical Physics, Santa Barbara, 1979–81 and 1983–85.

Chair, Department of Physics, University of California, Santa Barbara, 1994–97.

### RECENT PROFESSIONAL SERVICE:

Member, NSF Advisory Committee for the Directorate of Computer and Information Science and Engineering, 1992-96.

Chair, Special Emphasis Panel on the NSF Theoretical Physics Program, 1996.

Chair, User Advisory Committee, National Computational Science Alliance, 1997-2004

Member, User Advisory Committee, National Partnership for Computational Infrastructure, 1997-2004

Chair, NSF Work Group on Applications of High Performance Computing, 1998

Member, Search Advisory Committee for the Director of the NSF Physics Division, 1998

Member, Review Committee for the NSF Terascale Computing System, 2000

Member, Terascale Advisory Committee, Pittsburgh Supercomputer Center, 2000-2004

Co-Chair, NSF Computational Physics Steering Committee, 2001-2002

Member, HECRTF Workshop Organizing Committee, 2003

Member, SciDAC 2005 Organizing Committee, 2005

Chair, Lattice QCD Executive Committee, 1999-present

### HONORS:

Phi Beta Kappa

Fellow of the American Physical Society

Co-founder, Institute for Theoretical Physics, Santa Barbara

## **CURRICULUM VITAE**

**Doug Toussaint**

### **PERSONAL:**

Born March 30, 1952

### **EDUCATION:**

B.S. (with highest honors), University of North Carolina at Chapel Hill, 1974

Ph.D. Physics, Princeton University 1978

### **PRESENT POSITION:**

Professor of Physics, University of Arizona

### **AWARDS:**

Sloan Foundation Fellowship, 1985 Fellow of the American Physical Society

### **RECENT PROFESSIONAL SERVICE:**

Member of APS Metropolis Prize selection committee, Sept. 2001 - Sept. 2003

Member of APS Division of Computational Physics Program Committee, April 2004 - present

Member of SciDAC Scientific Program Committee, July 2001 - present

Local Organizer, Lattice-2006 conference (Tucson, AZ)

Member of International Advisory Committee, Lattice 2007 conference