

Gerald S. Guralnik

Professor of Physics
Brown University

Professional Preparation:

Sc.B. Massachusetts Institute of Technology
M.A. Harvard University
Ph.D. Harvard University
NSF Postdoctoral Fellow, Imperial College
Research Associate, University of Rochester

Professional Appointments:

1973-present Professor of Physics, Brown University
1969-73 Associate Professor of Physics, Brown University
1967-69 Assistant Professor of Physics, Brown University
1987- Consultant, Los Alamos National Laboratory
1985-87 Staff Member, Los Alamos National Laboratory
1975-84 Consultant, Los Alamos National Laboratory

Awards and Honors:

NSF Postdoctoral Fellow,
Alfred P. Sloan Foundation Fellow,
Fellow - American Physical Society

Selected Recent Publications:

“Programming a Parallel Computer: The Ersatz Brain Project” (with JA Anderson, P Allopenna, D Sheinberg, JA Santini, D Dimitriadis, BB Machta, and BT Merrit) (in press) in Challenges to Computational Intelligence. Springer: Berlin. Editors: W Duch, J Mandzuik, and JM Zurada

“Alternative Numerical Techniques”, (G.S. Guralnik, J. Doll, R. Easter, P. Emirdag, D.D. Ferrante, S. Hahn, D. Petrov and D. Sabo), Nucl. Phys. Proc. Suppl. **119**, 950 (2003)

“Mollified Monte Carlo”, (D.D. Ferrante, J. Doll, G.S. Guralnik and D. Sabo), Nucl. Phys. Proc. Suppl. **119**, 965 (2003)

“The Sinc Function Representation And Three Loop Master Diagrams”, (R. Easter, G. S. Guralnik and S. Hahn),. Phys.Rev.D **63**, 085017 (2001)

“New Numerical Methods For Quantum Field Theories On The Continuum”, (P. Emirdag, R. Easter, G.S. Guralnik and S.C. Hahn), Nucl. Phys. Proc. Suppl. **83**, 938 (2000)

Selected Significant Publications:

"Global Conservation Laws and Massless Particles," (G.S. Guralnik, C.R. Hagen and T.W.B. Kibble), Phys. Rev. Lett. **13**, 585 (1964).

"Electromagnetic Mass Differences of Pions," (T. Das, G. S. Guralni, V. S. Mathur, F. E. Low and J. E. Young), Phys. Rev. Lett. **18**, 759 (1968).

"Integral Formulation of Mean-Field Perturbation Theory," (C. M. Bender, F. Cooper and G. S. Guralnik), Annals of Physics **109**, 165 (1977).

"Is the Fermi Theory of Weak Interactions a Yang-Mills Theory in Disguise?" (F. Cooper, G. S. Guralnik and N. J. Snyderman), Phys. Rev. Lett. **40**, 1620 (1978).

"Weak Interaction Matrix Elements with Staggered Fermions I: Theory and a Trial Run," (R. Gupta, G. S. Guralnik, G. Kilcup, A. Patel and S. Sharpe), Nucl. Phys. B**286**, 253 (1987).

Graduate and Postdoctoral Advisors:

Graduate Thesis Advisor: Walter Gilbert

Postdoctoral Advisors: Paul Matthews, Robert Marshak (both deceased)

Some Recent Collaborators:

Stephen Hahn (Sun Micro Systems), Richard Easter (Yale), Jimmie Doll (Brown), D. Sabo (Brown), Mike Tarr (Brown), James Anderson (Brown), Mike Paradisio (Brown), David Sheinberg (Brown), Roman Jackiw (MIT), Alfredo Iorio (MIT and Brown), So Young Pi (Boston University) P Allopenna (Aptima), JA Santini (Brown), D Dimitriadis (Brown), B. Machta (Brown) , and BT Merrit (Brown)

Recent Graduate Students:

John Lawson, Stephen Hahn, Santiago Garcia
Pinar Emirdag, Dmitri Petrov