

LIST OF CONTRIBUTORS

- Kazuo Abe
*Japanese High-Energy Accelerator Research
Organization*
Japanese High-Energy Accelerator
Research Organization, KEK
- Peter Arnold
University of Virginia, Charlottesville
Electroweak Phase Transition
- Robert G. Arns
University of Vermont, Burlington
Reines, Frederick
- Neil Ashby
University of Colorado, Boulder
Case Study: Gravitational Wave Detection,
LIGO
- Gordon J. Aubrecht II
Ohio State University
Lawrence, Ernest Orlando
- Lawrence Badash
University of California, Santa Barbara
Radioactivity, Discovery of
Rutherford, Ernest
- Jonathan Bagger
Johns Hopkins University
Planck Scale
- Vernon Barger
University of Wisconsin, Madison
Gauge Theory
Grand Unification
- William A. Barletta
Lawrence Berkeley National Laboratory
Devices, Accelerating
- Katharina Baur
Stanford Synchrotron Radiation Laboratory
Radiation, Synchrotron
- Benjamin Bayman
University of Minnesota, Minneapolis
Cyclotron
Radioactivity
- Karl Berkelman
Cornell University
Cornell Laboratory for Elementary Particle
Physics
- William K. Brooks Jr.
Thomas Jefferson National Accelerator Facility
Accelerators, Fixed-Target: Electron
- Laurie M. Brown
Northwestern University
Neutrino, Discovery of
Pauli, Wolfgang
Tomonaga, Sin-itiro
Yukawa, Hideki

- Nina Byers
University of California, Los Angeles
Noether, Emmy
- Lawrence S. Cardman
*Thomas Jefferson National Accelerator Facility and
University of Virginia*
Thomas Jefferson National Accelerator
Facility
- R. Sekhar Chivukula
Boston University
Electroweak Symmetry Breaking
- Lawrence A. Coleman
University of Arkansas at Little Rock
Momentum
Quantum Tunneling
- Janet Conrad
Columbia University
Lepton
- Robert P. Crease
State University of New York, Stony Brook
Brookhaven National Laboratory
- Sally Dawson
Brookhaven National Laboratory
Boson, Gauge
Standard Model
- Michael Dine
University of California, Santa Cruz
Particle
Symmetry Principles
- Gabor Domokos
Johns Hopkins University
Resonances
- John F. Donoghue
University of Massachusetts, Amherst
Broken Symmetry
Renormalization
- Gerald F. Dugan
Cornell University
Accelerator
- Guy T. Emery
Bowdoin College
Atom
- William E. Evenson
Brigham Young University
Energy
Energy, Center-of-Mass
Energy, Rest
- Isobel Falconer
Open University, UK
Electron, Discovery of
Thomson, Joseph John
- Adam F. Falk
Johns Hopkins University
Hadron, Heavy
- Jonathan L. Feng
University of California, Irvine
Supersymmetry
- Kenneth W. Ford
American Institute of Physics (retired)
Conservation Laws
- Gordon Fraser
Accelerators, Colliding Beams: Hadron
- Wendy L. Freedman
Carnegie Observatories, Pasadena, CA
Hubble Constant
- Robert Garisto
Physical Review Letters
Virtual Processes
- Marcelo Gleiser
Dartmouth College
Phase Transitions
- Charles Goebel
University of Wisconsin, Madison
Gauge Theory
- M.C. Gonzalez-Garcia
European Laboratory for Particle Physics (CERN)
Neutrino Oscillations
- Howard A. Gordon
Brookhaven National Laboratory
Case Study: LHC Collider Detectors,
ATLAS and CMS
- Paul Grannis
State University of New York, Stony Brook
Detectors and Subsystems

- Benjamin Grinstein
University of California, San Diego
Flavor Symmetry
- Lee Grodzins
Massachusetts Institute of Technology
Kendall, Henry
- David Gross
University of California, Santa Barbara
Unified Theories
- Howard E. Haber
University of California, Santa Cruz
Boson, Higgs
- Francis Halzen
University of Wisconsin, Madison
Neutrino Oscillations
- Frederick A. Harris
University of Hawaii, Honolulu
Beijing Accelerator Laboratory
- Donald Hartill
Cornell University
Injector System
- Wick C. Haxton
University of Washington, Seattle
Neutrino, Solar
- Kenneth J. Heller
University of Minnesota, Minneapolis
Particle Physics, Elementary
- JoAnne Hewett
Stanford Linear Accelerator Center
CKM Matrix
Scattering
- Christopher T. Hill
Fermi National Accelerator Laboratory
Higgs Phenomenon
- David Hitlin
California Institute of Technology
Detectors, Collider
- L. Donald Isenhower
Abilene Christian University
Detectors, Particle
- Maurice Jacob
European Laboratory for Particle Physics (CERN)
CERN (European Laboratory for Particle
Physics)
International Nature of Particle Physics
- Michel Janssen
University of Minnesota, Minneapolis
Einstein, Albert
- Elizabeth Jenkins
University of California, San Diego
SU(3)
- T. W. B. Kibble
Imperial College, London
Salam, Abdus
- Chung W. Kim
*Johns Hopkins University and Korea Institute for
Advanced Study, Seoul, Korea*
Neutrino
- Robert P. Kirshner
*Harvard-Smithsonian Center for Astrophysics,
Cambridge, MA*
Supernovae
- Adrienne W. Kolb
Fermi National Accelerator Laboratory
Fermilab
- Noemie Benczer Koller
Rutgers University
Wu, Chien-Shiung
- Helge Kragh
University of Aarhus, Denmark
Cosmology
Dirac, Paul
- Lawrence M. Krauss
Case Western Reserve University
Cosmological Constant and Dark Energy
- Graham Kribs
University of Wisconsin, Madison
Grand Unification
- G. Peter Lepage
Cornell University
Lattice Gauge Theory
- Harry J. Lipkin
Weismann Institute of Science, Rehovot, Israel
Quarks, Discovery of

- Raphael Littauer
Cornell University
Accelerators, Colliding Beams: Electron-Positron
- Byron G. Lundberg
Fermi National Accelerator Laboratory
Experiment: Discovery of the Tau Neutrino
- Robert H. March
University of Wisconsin, Madison
Muon, Discovery of
- William J. Marciano
Brookhaven National Laboratory
Quantum Electrodynamics
- John Marriner
Fermi National Accelerator Laboratory
Accelerators, Fixed-Target: Proton Cooling, Particle Extraction Systems
- Boyce D. McDaniel
Cornell University
Wilson, Robert R.
- Kevin McFarland
University of Rochester
Detectors, Fixed-Target
- Stephen G. Naculich
Bowdoin College
Cosmic Strings, Domain Walls
- Meenakshi Narain
Boston University
Experiment: Discovery of the Top Quark
- Dwight E. Neuenschwander
Southern Nazarene University
Antimatter
- Keith Olive
University of Minnesota, Minneapolis
Dark Matter
- Mark J. Oreglia
University of Chicago
Charmonium
- Wolfgang K. H. Panofsky
Stanford University
Funding of Particle Physics
- Elizabeth Paris
Massachusetts Institute of Technology
Antiproton, Discovery of
- Roberto Peccei
University of California, Los Angeles
Basic Interactions and Fundamental Forces
- Nan Phinney
Stanford Linear Accelerator Center
Z Factory
- William H. Pickering
California Institute of Technology (emeritus)
Anderson, Carl D.
- Joseph Polchinski
University of California, Santa Barbara
String Theory
- John Polkinghorne
Queens College, Cambridge, UK
Culture and Particle Physics
Metaphysics
- Stephen Pordes
Fermi National Accelerator Laboratory
Detectors
- Richard H. Price
University of Utah, Salt Lake City
Relativity
- Helen Quinn
Stanford Linear Accelerator Center
J/ ψ
SLAC (Stanford Linear Accelerator Center)
- David Rainwater
Fermi National Accelerator Laboratory
Experiment: Search for the Higgs Boson
- Krishna Rajagopal
Massachusetts Institute of Technology
Quark-Gluon Plasma
- Regina Rameika
Fermi National Accelerator Laboratory
Experiment: Discovery of the Tau Neutrino
- Pierre Ramond
University of Florida, Gainesville
Family

- Blair N. Ratcliff
Stanford Linear Accelerator Center
Radiation, Cherenkov
- Rashmi Ray
Physical Review Letters
Virtual Processes
- Michael L. G. Redhead
University of London, UK
Philosophy and Particle Physics
- David Rice
Cornell University
Accelerators, Colliding Beams: Electron-Positron
- Steven Ritz
NASA Goddard Space Flight Center
Detectors, Astrophysical
- B. Lee Roberts
Boston University
Experiment: $g-2$ Measurement of the Muon
- Natalie Roe
Lawrence Berkeley National Laboratory
B Factory
- Xavier Roqué
Universitat Autònoma Barcelona, Bellaterra, Spain
Positron, Discovery of
- Jonathan L. Rosner
University of Chicago
CP Symmetry Violation
Eightfold Way
- Lewis Ryder
University of Kent, Canterbury, UK
Annihilation and Creation
Feynman Diagrams
Parity, Nonconservation of
- David H. Saxon
University of Glasgow, UK
Accelerators, Colliding Beams: Electron-Proton
Influence on Science
Particle Identification
- Silvan S. Schweber
Brandeis University
Feynman, Richard
Schwinger, Julian
- Robert W. Seidel
University of Minnesota, Twin Cities
Accelerators, Early
- Ramamurti Shankar
Yale University
Quantum Field Theory
- Pierre Sikivie
University of Florida, Gainesville
Axion
- Joseph I. Silk
University of Oxford, UK
Big Bang
- Albert Silverman
Cornell University
Wilson, Robert R.
- Elizabeth H. Simmons
Boston University
Electroweak Symmetry Breaking
- Alexander N. Skrinsky
Budker Institute of Nuclear Physics
Budker Institute of Nuclear Physics
- Henry W. Sobel
University of California, Irvine
Case Study: Super-Kamiokande and the Discovery of Neutrino Oscillations
- Paul Söding
Deutsches Elektronen-Synchrotron Laboratory
DESY (Deutsches Elektronen-Synchrotron Laboratory)
- Suzanne T. Staggs
Princeton University
Cosmic Microwave Background Radiation
- George Sterman
State University of New York, Stony Brook
Asymptotic Freedom
Jets and Fragmentation
Quantum Chromodynamics
- Roger H. Stuewer
University of Minnesota, Minneapolis
Chadwick, James
Neutron, Discovery of
- Daniel F. Styer
Oberlin College
Quantum Mechanics

Michael J. Syphers
Fermi National Accelerator Laboratory
 Beam Transport

John Terning
Los Alamos National Laboratory
 Technicolor

Alvin V. Tollestrup
Fermi National Accelerator Laboratory
 Quarks

Virginia Trimble
University of California, Irvine
 Astrophysics

Neil G. Turok
University of Cambridge, UK
 Inflation

Roger K. Ulrich
University of California, Los Angeles
 Big Bang Nucleosynthesis

Erich Vogt
University of British Columbia, Vancouver, Canada
 Wigner, Eugene

C. Jake Waddington
University of Minnesota, Minneapolis
 Cosmic Rays

Terry P. Walker
Ohio State University
 Universe

Albert Wattenberg
University of Illinois, Urbana-Champaign
 Fermi, Enrico

Bebo White
Stanford Linear Accelerator Center
 Computing

Frank Wilczek
Massachusetts Institute of Technology
 Benefits of Particle Physics to Society
 Quantum Statistics

Edmund J. N. Wilson
European Laboratory for Particle Physics (CERN)
 SSC

Bruce Winstein
University of Chicago
 Outlook

Stanley G. Wojcicki
Stanford University
 Case Study: Long Baseline Neutrino
 Detectors, K2K, MINOS, and OPERA

Zhipeng Zheng
Institute of High Energy Physics, Beijing, China
 Beijing Accelerator Laboratory