

THE SLAC SUMMER INSTITUTES ON PARTICLE PHYSICS

1973 - 1989

1973 DEEP INELASTIC ELECTROPRODUCTION

"Hadron Production in Deep Inelastic Processes" J. D. Bjorken  
 "Hadron Production in the Collision of Virtual  
 Photons with Nucleons - an Experimental Review" M. Perl  
 "Phenomenological Analysis" F. J. Gilman  
 "Asymptotic Behavior and Short Distance  
 Singularities" Y. Frishman

WEAK CURRENTS AND INTERACTIONS

"Raw Notes of Lectures on Current Algebra  
 and PCAC" S. Drell  
 "Experimental Phenomenology" M. Schwartz  
 S. Wojcicki  
 "Gauge-Theories of Weak and Electromagnetic  
 Interaction" T. Appelquist  
 "How to Transform Current Quarks to Constituent  
 Quarks and Try to Predict Hadron Decays" J. Primack  
 M. Kugler

1974 THE STRONG INTERACTIONS

"Diffractive Processes" D.W.G.S. Leith  
 "Amplitude Structure in Two- and  
 Quasi-Two-Body Processes" M. Davier  
 "Resonances: Experimental Review" R.J. Cashmore  
 "Resonances: A Quark View of Hadron Spectroscopy  
 and Transitions" F. J. Gilman  
 "Lectures on Inclusive Hadronic Processes" D. Sivers  
 "Large Momentum Transfer Processes" R. Blankenbecler  
 "Hadron Dynamics" H.D.I. Abarbanel

1975 DEEP HADRONIC STRUCTURE AND  
 THE NEW PARTICLES

"Leptons as a Probe of Hadronic Structure" F. J. Gilman  
 "Lepton Scattering as a Probe of  
 Hadron Structure" E. D. Bloom  
 "High  $p_{\perp}$  Dynamics" J. D. Bjorken  
 "Hadronic Collision and Hadronic Structure  
 (An Experimental Review)" M. Davier  
 "The New Spectroscopy" H. Harari  
 "The New Spectroscopy (An Experimental Review)" G. H. Trilling

1976 WEAK INTERACTIONS AT HIGH ENERGY AND  
 THE PRODUCTION OF NEW PARTICLES

"Weak Interaction Theory and Neutral Currents" J. D. Bjorken  
 "Weak Interactions at High Energy" S. G. Wojcicki  
 " $\psi$  Spectroscopy" G. J. Feldman  
 "A New Lepton?" G. J. Feldman  
 "Lectures on the New Particles" J. D. Jackson  
 "New Particle Production" D. Hitlin

1977 QUARK SPECTROSCOPY AND  
 HADRON DYNAMICS

"Quarks and Leptons" H. Harari  
 "Quark Confinement" S. D. Drell  
 "Hadron Spectroscopy" F. J. Gilman  
 "Lectures on the Quark Model, Ordinary Mesons,  
 Charmed Mesons, and Heavy Leptons" M. L. Perl  
 "Quarks and Particle Production" K. C. Moffeit

1978 WEAK INTERACTIONS - PRESENT  
 AND FUTURE

"Accelerator Neutrino Experiments" D. H. Perkins  
 "Weak Interactions at High Energies" J. Ellis  
 "Gauge Theories of the Weak Interactions" H. Quinn  
 "Weak Decays" S. Wojcicki

1979 QUANTUM CHROMODYNAMICS

"Lepton Nucleon Scattering" W. G. Atwood  
 "Massive Lepton Pair Production" R. Stroynowski  
 "QCD Phenomenology of the Large  $P_T$  Processes" R. Stroynowski  
 "Perturbative Quantum Chromodynamics" S. J. Brodsky  
 "Elements of Quantum Chromodynamics" J. D. Bjorken

1980 THE WEAK INTERACTIONS

- "Gauge Theories of Weak Interactions" M. J. Veltman  
 "Neutrinos and Neutrino Interactions" F. J. Sciulli  
 "Weak Decays of Strange and Heavy Quarks" D. Hitlin  
 "From the Standard Model to Composite Quarks and Leptons" H. Harari  
 "Physics of Particle Detectors" D. M. Ritson  
 J. Jaros  
 J. Marx  
 H. A. Gordon  
 R. S. Gilmore  
 W. B. Atwood

1981 THE STRONG INTERACTIONS

- "Quark-Antiquark Bound State Spectroscopy and QCD" E. D. Bloom  
 "Meson Spectroscopy: Quark States and Glueballs" M. S. Chanowitz  
 "Quantum Chromodynamics and Hadronic Interactions at Short Distances" S. J. Brodsky  
 "Untangling Jets from Hadronic Final States" G. Fox  
 "Heavy Flavor Production from Photons and Hadrons" C. A. Heusch  
 "Design Constraints and Limitations in  $e^+e^-$  Storage Rings" J. LeDuff  
 "Linear Colliders: A Preview" H. Wiedemann

1982 PHYSICS AT VERY HIGH ENERGIES

- "Expectations for Old and New Physics at High Energy Colliders" R. N. Cahn  
 "Beyond the Standard Model in Lepton Scattering and Beta Decay" M. Strovink  
 "Grand Unification, Proton Decay, and Neutrino Oscillations" H. H. Williams  
 " $e^+e^-$  Interactions at Very High Energy: Searching Beyond the Standard Model" J. Dorfan  
 "The Gauge Hierarchy Problem, Technicolor, Supersymmetry, and All That" L. Susskind  
 "Composite Models for Quarks and Leptons" H. Harari  
 "Electron-Proton Colliding Beams: The Physics Programme and the Machine" B. H. Wiik

1983 DYNAMICS AND SPECTROSCOPY AT HIGH ENERGY

- "Jets in QCD: A Theorist's Perspective" S. Ellis  
 "Jets in  $e^+e^-$  Annihilation" R. Hollebeek  
 "Jet Production in High Energy Hadron Collisions" R. F. Schwitters  
 "Aspects of the Dynamics of Heavy-Quark Systems" M. E. Peskin  
 "Heavy Particle Spectroscopy and Dynamics B's to Z's" M. G. D. Gilchriese  
 "... And for Our Next Spectroscopy?" J. Ellis  
 "Review of the Physics and Technology of Charged Particle Detectors" A. H. Walenta  
 "A Review of the Physics and Technology of High-Energy Calorimeter Devices" P. M. Mockett

1984 THE SIXTH QUARK

- "The Last Hurrah for Quarkonium Physics: The Top System" E. Eichten  
 "Developments in Solid State Vertex Detectors" C. J. S. Damerell  
 "Experimental Methods of Heavy Quark Detection" T. Himel  
 "Production and Uses of Heavy Quarks" G. L. Kane  
 "Weak Interactions of Quarks and Leptons: Experimental Status" S. Wojcicki  
 "The Experimental Method of Ring-Imaging Cherenkov (RICH) Counters" T. Ekelöf  
 "Weak Interactions of Quarks and Leptons (Theory)" H. Harari

PIEF-FEST

- "Pief" S. Drell  
 "Accelerator Physics" R. R. Wilson  
 "High Energy Theory" T. D. Lee  
 "Science and Technology Policies for the 1980s" F. Press  
 "Inclusive Lepton-Hadron Experiments" J. Steinberger  
 "Forty-Five Years of  $e^+e^-$  Annihilation Physics: 1956 to 2001" B. Richter  
 "We Need More Piefs" J. Wiesner

1985 **SUPERSYMMETRY**

"Introduction to Supersymmetry"  
 "Signatures of Supersymmetry in  $e^+e^-$  Collisions"  
 "Properties of Supersymmetric Particles & Processes"  
 "Supersymmetry: Experimental Signatures at  
 Hadron Colliders"  
 "Superworld/Hyperworlds"  
 "Very High Energy Colliders"  
 "Some Issues Involved in Designing a 1 TeV (c.m.)  
 $e^\pm$  Linear Collider Using Conventional Technology"  
 "Wake Field Accelerators"  
 "Plasma Accelerators"  
 "Collider Scaling and Cost Estimation"

J. Polchinski  
 D. Burke  
 R. M. Barnett  
 P. Darriulat  
  
 M. E. Peskin  
 B. Richter  
 G. A. Loew  
  
 P. B. Wilson  
 R. D. Ruth & P. Chen  
 R. B. Palmer

1986 **PROBING THE STANDARD MODEL**

"Electroweak Interactions —Standard and Beyond"  
 "CP and Other Experimental Probes of Electroweak Phenomena"  
 "Perturbative QCD: K-Factors"  
 "Experimental Tests of Quantum Chromodynamics"  
 "Phenomenology of Heavy Quark Systems"  
 "Heavy Quark Spectroscopy and Decay"  
 "Some Aspects of Computing in High Energy Physics"  
 "Data Acquisition for High Energy Physics Experiments"

H. Harari  
 B. Winstein  
 R. Field  
 J. Dorfan  
 F. Gilman  
 R. Schindler  
 P. Kunz  
 M. Breidenbach

1987 **LOOKING BEYOND THE Z**

"Theory of  $e^+e^-$  Collisions at Very High Energy"  
 "Prospects for Physics at  $e^+e^-$  Linear Colliders"  
 "Physics with Polarized Electron Beams"  
 "Electron-Proton Physics at HERA"  
 "Hadron Colliders Beyond the  $Z^0$ "  
 "Physics at Hadron Colliders (Experimental View)"  
 "The Dialogue Between Particle Physics and Cosmology"  
 "Requirements for Detectors at SSC"

M. E. Peskin  
 G. J. Feldman  
 M. L. Swartz  
 G. Wolf  
 C. Quigg  
 J. L. Siegrist  
 B. Sadoulet  
 M.G.D. Gilchrist\*

1988 **PROBING THE WEAK INTERACTION:  
 CP VIOLATION AND RARE DECAYS**

"Results on  $b$ -Decay in  $e^+e^-$  Collisions,  
 with Emphasis on CP Violation"  
 "Precious Rarities—On Rare Decays of  $K$ ,  $D$  and  $B$  Mesons"  
 "Superconducting Detectors for Monopoles and Weakly  
 Interacting Particles"  
 "Cosmic Relics from the Big Bang"  
 "Double Beta Decay"  
 "Neutrino Masses and Mixings"  
 "The Bottom Quark: A Key to 'Beyond Standard' Physics"  
 " $b$ -Physics in Fixed Target Experiments"  
 "Experimental Searches for Rare Decays"

K. Berkelman  
  
 I. Bigi  
 B. Cabrera  
  
 L. Hall  
 M. S. Witherell  
 L. Wolfenstein  
 H. Harari\*  
 J. Sandweiss\*  
 A.J.S. Smith\*

1989 **PHYSICS AT THE 100 GeV MASS SCALE**

"Heavy Quarks-Experimental"  
 "The Theory of Heavy Flavour Production"  
 "Precision Experiments in Electroweak Interactions (Experimental)"  
 "Theory of Precision Electroweak Measurements"  
 "Applications of QCD to Hadron-Hadron Collisions: Experimental"  
 "Applications of QCD to Hadron-Hadron Collisions: Theoretical"  
 " $W^+W^-$  Interactions and the Search for the Higgs Boson"  
 "Electroweak Symmetry Breaking: Higgs/Whatever"  
 "Electron-Positron Storage Rings as Heavy Quark Factories"  
 "Prospects for Next-Generation  $e^+e^-$  Linear Colliders"  
 "Current Prospects for Hadron Colliders"  
 "Hadron Colliders Beyond the SSC"

R. Hollebeck  
 R.K. Ellis  
 M. Swartz  
 M. Peskin  
 M.D. Shapiro  
 I. Hinchcliffe  
 M.E. Levi  
 M.S. Chanowitz  
 R.H. Siemann  
 R.D. Ruth  
 H. Edwards  
 M. Tigner

\*Manuscript was not received in time for printing.