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JAMES WILLIAM ROHLF

Office Address:

Department of Physics, 590 Commonwealth Avenue
Boston University, Boston, MA 02215, 617-353-6035
email: rohlf@bu.edu, <http://physics.bu.edu/~rohlf/>

Date of Birth:

August 24, 1951, Cloquet, Minnesota, USA.

Education:

Ph.D. Physics, California Institute of Technology (1980)
M.S. Physics, University of California, Los Angeles (1975)
B.A. Physics, University of Minnesota (1973)
B.S. Mathematics, University of Minnesota (1973)

Employment:

Professor of Physics, Boston University, 1988–present
Associate Professor of Physics, Harvard University, 1985-8.
Assistant Professor of Physics, Harvard University, 1981-5.
Scientific Associate, European Center for Nuclear Research (CERN), 1982-4.
Research Associate, Harvard University, 1980-1.
Visiting Fellow, Laboratory of Nuclear Studies, Cornell University, 1980-2.
Research Fellow, California Institute of Technology, 1979-80.

Recent Teaching:

PY211, Freshman Mechanics
PY212, Freshman/Sophomore Electricity and Magnetism
PY313, Sophomore Modern Physics
PY521/522, Graduate Electrodynamics

Research Projects:

Compact Muon Solenoid (CMS) 1992-present

Design and construction of electronics and data acquisition for use at the CERN Large Hadron Collider. Search for the origin of electroweak symmetry breaking and new physics beyond the standard model. Project Manager in charge of Hadron Calorimeter Detector Controls. Project Manager for Jets and Missing Energy Physics group. Member of the US CMS Advisory Software and Computing Board.

Very Energetic Radiation Imaging Telescope Array System (VERITAS) 1992-6

Design of a novel gamma ray telescope to search for high energy gamma rays from collapsing stars, black holes, and other exotic objects, 1992-6

L* Detector, 1988-92

Design of a large general purpose detector for the Superconducting Super Collider, Spectrometer magnet design and charged particle tracking.

UA1 Experiment, 1981-92

Study of proton-antiproton collisions at CERN; discovery of the fundamental particles W and Z that transmit the weak force and measurement of their basic properties, leading to the 1984 Nobel Prize in physics awarded to Carlo Rubbia and Simon Van der Meer. Measurement of quark-quark scattering cross sections in the search for new phenomena.

CLEO Experiment, 1980-2

Study of electron-positron collisions at Cornell with the CLEO detector; discovery and measurement of the properties of particles containing b quarks.

Fermilab E260, 1975-9

Study of quark-quark scattering at Fermilab. First measurement of the quark-quark scattering cross section with a quantitative comparison with quantum chromodynamics (QCD).

Recent invited talks:

Status of the LHC Detectors and Plans for Commissioning, International Conference on Particle Physics at the Verge of Discovery, Aspen, CO, Feb. 15, 2006.

The Wind Farm: Economics, Politics, Environment, and Physics, Cornell Club of Cape Cod, Chatham, MA, Oct. 6, 2004

Physics With Jets at the LHC, XXXIV International Symposium on Multiparticle Dynamics, Sonoma, CA, July 29, 2004.

Super-LHC: The Experimental Program, International Conference on Future Hadron Colliders, Fermilab, Batavia, IL, Oct. 17, 2003.

CMS Physics Reach at High and Super-High Luminosities, IV International Symposium on LHC Physics, Fermilab, Batavia, IL, May 2, 2003.

Selected publications:

Textbook

Modern Physics from alpha to Z, John Wiley and Sons, 646 pages (1994).

Environmental

The Wind Farm Question: Cost and Benefits for the Cape and Islands, Cape Cod Life, Jan. 2004.

Shellfish Under Attack, Cape Cod Life, July 2002.

Saving the Bay, Cape Cod Life, July 2001.

Compact Muon Solenoid

CMS Physics Technical Design Report Vol. 1: Detector Performance and Software, CERN/LHCC 2006-001 CMS TDR 8.1 (2006).

Measurement of Missing Transverse Energy With the CMS Detector at the LHC, CERN Note-2006/035 (2006).

Measurement of Jets With the CMS Detector at the LHC, CERN Note-2006/036 (2006).

Conceptual Design of an Improved CMS RPC Muon Trigger Using the Hadron Outer Scintillators, Nucl. Inst. Meth. A545, 97 (2005).

Physics With Jets at the LHC, Acta Phys. Polon. B36, 469 (2005).

Physics Reach With CMS at High and Super-High Luminosities, Eur. Phys. J. C34, S221 (2004).

Radioactive Source Calibration Technique for the CMS Hadron Calorimeter, Nucl. Inst. Meth. A511, 311 (2003).

Superconducting Super Collider

Performance of Small-Radius Thin-Wall Drift Tubes in an SSC Radiation Environment at the MIT Research Reactor, IEEE Trans. Nucl. Science 37, 1564 (1990).

Design and Performance of Drift Tubes for Tracking at High-Luminosity Hadron Colliders, Part. World 1, 168 (1990).

Present Status of Warm-Liquid Calorimetry, DPF Summer study on High-Energy Physics in the 1990s, Snowmass Proceedings, 816 (1988).

UA1 Experiment

Experimental Observation of Isolated Large Transverse Energy Electrons With Associated Missing Energy at $s^{1/2} = 540\text{-GeV}$, Phys. Lett. B122, 103 (1983).
(W discovery)

Experimental Observation Lepton Pairs of Invariant Mass Around $95\text{-GeV}/c^2$ at the CERN SPS Collider, Phys. Lett. B126, 398 (1983).
(Z discovery)

Angular distributions for High Mass Jet Pairs and a Limit on the Energy scale for Compositeness for Quarks from the CERN proton-antiproton Collider, Phys. Lett. B177, 244 (1986).

Intermediate Vector Bosons, Encyclopedia of Science and Technology, McGraw-Hill, Vol. 9, 317 (1992).

Physics at the Proton-Antiproton Collider, Proceedings of the 12th International Conference on High Energy Accelerators, Fermilab, 619 (1983).

Results from UA1, invited talk given at the annual meeting of the Div. of Particles and Fields of the APS, Eugene, OR (QCD161:A6:1985).

Events With Large Missing Transverse Energy at the CERN Collider (Paper 3): Mass Limits on Supersymmetric Particles, Phys. Lett. B198, 261 (1987).

Limits on t Quark Decay into Charged Higgs from a Direct Search at the CERN Proton-Antiproton Collider, Phys. Lett. B257, 459 (1991).

CLEO Experiment

Observation of the Exclusive Decay Modes of B Flavored Mesons, Phys. Rev. Lett. 50, 881 (1983).
(B discovery)

Observation of a Fourth Upsilon State in Electron-Positron Annihilations, Phys. Rev. Lett. 45, 218 (1980).

Evidence for New Flavor Production at the Upsilon(4S), Phys. Rev. Lett. 46, 84 (1981).

The CLEO Detector, Nucl. Inst. Meth. 211, 47 (1983).

Fermilab E260

Observation of Jets of Particles at High Transverse Momentum and Comparison With Inclusive Single Particle Reactions, Phys. Rev. Lett. 38, 1447 (1977).
(discovery of jets)

Production of Jets and Single Particles at High p_T in 200-GeV Hadron Beryllium Collisions, Nucl. Phys. B134, 189 (1978).

Experimental Tests of Quantum Chromodynamics in High p_T Jet Production in 200-GeV Hadron-Proton Collisions, Phys. Rev. Lett. 43, 565 (1979).

Jet production in High-Energy Hadron-Proton Collisions, Nucl. Phys. B171, 1 (1980)
(Rohlf Ph.D. thesis)

