

# VITA

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## **Education**

B.S., Harvard University, 1964  
Ph.D., University of California at Berkeley, 1970

## **Professional experience**

Senior Physicist, ANL (1987-present)  
Physicist, ANL (1977-1987)  
Assistant Physicist, ANL (1973-1976)  
Postdoctoral fellow, ANL (1970-1972)

## **Professional Activities**

DOE HEP Review panel for BNL (1997-1998).  
DOE HEP Review panel for SLAC (2003-2004).  
  
Chairperson of Annual APS DPF Meeting (1977).  
Organizing Committee, Experimental Meson Spectroscopy, BNL (1980).  
Organizing Committee for Annual APS DPF Meeting (1991).  
Organizing Committee for Pbars in Collision (1988, 1989).  
Organizing Committee for B Physics and CP Violation, Hawaii (1997, 1999).  
Organizing Committee and Editor, “B Physics at the Tevatron: Run II and Beyond”, (1999-2001).  
Organizing Committee for Aspen Winter Workshop (2004).  
  
University of Chicago Distinguished Performance Award (1997).  
Fellow, American Physical Society.  
  
Co-Group Leader, ANL CDF Group (1986-present).  
CDF Executive Board.

CDF Publication Review Committee (2005).  
SDC (SSC) Technical Board (1990-1993).  
CDF B-Physics co-Convener (1998-2001).  
CDF B-Physics Trigger Convener (2002-2004).  
LEP-SLD-CDF B Oscillations Working Group (1998-2001).  
ANL Labwide Promotions Committee (1988-1991).

## Research Accomplishment Summary

Construction and operation of ANL Effective Mass Spectrometer (1971-1980).  
Fermilab M6-line high resolution spectrometer experiments (1975-1979).  
Construction and testing of CDF central EM calorimeter (1982-).  
CDF technical notes on electromagnetic and hadronic shower development (1982-).  
Author of CDF shower max. detector reconstruction (1983-).  
Demonstration of CDF prompt photon reconstruction (1987).  
CDF electron calibration strategy for W/Z-boson mass measurements (1989-).  
First conversion electron x-ray of CDF detector (1993-).  
First detection of semileptonic B-decays at CDF (1988).  
Advanced CDF preshower detector project (1987-).  
Advanced shower max.  $e/\gamma$  level-2 trigger (1990-).  
SDC (SSC) calorimeter design, many technical notes and presentations (1990-1993).

## Research activities

My current research is focussed on the CDF detector at the Fermilab Tevatron. I have participated in the CDF project since 1981, and have been group leader for the Argonne CDF effort since 1986. In the design stage of CDF, I worked on prototype studies of the central calorimeters, and during the production stage I was responsible for the central shower max. detector construction. Electron and photon identification, including identification of low  $p_T$  electrons from b-quark decay, have been key strengths of the CDF physics program. I have helped to develop the analysis and trigger strategies used for electron/photon identification, and I have initiated successful upgrades to CDF, including the preshower detectors and the shower-max electron/photon triggers.

CDF covers a broad range of physics. In addition to electron and photon identification, I have focussed on b-physics measurements and on precision electroweak physics. I developed many of the calibration procedures that CDF uses for W and Z mass measurements. In b-physics, I initially focussed on semileptonic B-hadron decay signatures to study b-quark cross sections and b-flavor tagging. I served as co-convener for the CDF b-physics group for three years (1998-2001), and as b-physics trigger co-convener (2001-). I have authored 68 technical notes for CDF to date, and have served as technical reviewer for many hardware projects and “godfather” for many analyses over the last decade.

During 1988-1993 I collaborated on the design of the Solenoidal Detector, which was one of the two large detectors planned for the Superconducting Super Collider. I worked primarily on the design of the electromagnetic calorimeters, drawing on experience with the CDF detector. I authored several technical notes on electron identification and b-quark tagging for the SDC. I served on the calorimeter technical board and on the SDC technical board, and also served as a technical reviewer for both the charged-particle tracking and the shower-max and preshower detector design efforts. I participated in the planning workshops on  $B$  physics potential at the SDC.

Prior to CDF and SDC, I participated in fixed-target experiments at FNAL and ANL. At FNAL, I worked on the single-arm spectrometer program in the M6 beamline, and designed beamline and spectrometer tunes used in experiment E99. At ANL, I worked on the Effective Mass Spectrometer program, which consisted of precision measurements in meson spectroscopy and also in baryon spectroscopy using polarized beams. I developed many of the experimental proposals for the EMS and served as spokesperson for five major experiments; I also did a large fraction of the analysis and publication of experimental results. One of many physics results from this program was the first systematic partial-wave analysis of inelastic channels in proton-proton interactions; this demonstrated that there are no conventional Breit-Wigner dibaryon resonances, an open question in the early 1980's.

I have supervised Ph.D. students- Mark Calkin (Rice U.), Fumihiko Ukegawa (Tsukuba U.), and William Bell (Glasgow U.)- and have served on thesis defense reviews (cf., John Weinstein, U. Toronto, for Nathan Isgur; Karoly Banazc, Purdue U., for L. Gutay) I have had numerous fruitful interactions with students and postdocs on the CDF experiment.

### **Selected Publications**

B-Physics at the Tevatron, Run II and Beyond, FERMILAB-Pub-01/197 (2001).  
Measurement of  $\sin 2\beta$  with the CDF Detector, CDF Collab., Phys. Rev. D61:072005 (2000).  
Observation of  $B_c$  Mesons in  $p\bar{b}$ -p collisions, CDF Collab., Phys. Rev. D58:112004 (1998).  
Observation of  $B^+$  and  $B^0$  Decay Lifetimes, CDF Collab., PRL 76:4462 (1996).  
Measurement of the W-Boson Mass, CDF Collab., Phys. Rev. D52:4784 (1995).

340 publications available on request or on SPIRES.

## **Technical Notes**

68 CDF technical notes, titles available on request.

## **Some Recent Invited Talks**

International Europhysics Conference, July 2001

ASPEN Winter Conference on Particle Physics at the Millenium, Jan. 2001

7th Conference on Intersections of Particle and Nuclear Physics (plenary), May 2001

Physics in Collision (plenary), June 1999

IIT Symposium in honor of Leon Lederman, June 1997

Complete list available on request