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Education

B.A. History	University of Wisconsin, Madison, WI	1976
B.S. Physics	San Francisco State University, San Francisco, CA	1981
PhD. Physics	University of California, Berkeley, CA	1986

Professional Experience

Department of Energy:	Program Manager, Office of High Energy Physics	2018 – 2020
University of Maryland:	Professor of Physics	2004 – present
	Chair, Physics Department	2006 – 2016
	Associate Chair, Facilities and Personnel	1999 – 2006
	Associate Professor of Physics	1995 – 2004
	Assistant Professor of Physics	1990 – 1995
	Assistant Research Scientist	1989 – 1990
Harvard University:	Postdoctoral Research Associate	1986 – 1989
University of California, Berkeley:	Graduate Research Assistant	1982 – 1986
	Graduate Teaching Assistant	1981

Recognition

Chair, CMS Endcap Upgrade Institutional Board	2015 – present
Fellow, American Association for the Advancement of Science	2012
Board of Directors, Fermilab Research Alliance LLC	2009 – 2014
Graduate Research Board Fellowship, University of Maryland	2005
Fellow, American Physical Society	2005
SSC Fellowship, Texas National Research Laboratory Commission	1991
Faculty Award for Teaching Excellence, U.C. Berkeley, DuPont Corp.	1981

Research Topics Summary

Topic	Location	Collaboration	Dates
Search for Fractional Charges	San Francisco State University		1978 – 1981
Heavy Ion Collisions	Lawrence Berkeley Lab Bevelac	Plastic Ball	1979 – 1981
e^+e^- Collisions	Stanford Linear Accelerator Center	Mark II	1982 – 1986
Proton-antiproton Collisions	Fermi National Accelerator Laboratory Tevatron	CDF	1986 – 1990
Proton-antiproton Collisions	Fermi National Accelerator Laboratory, Tevatron	DZero	1989 – 2004
Proton-proton Collisions	CERN Large Hadron Collider	CMS	1999 – present

Research Highlights

1. Search for Fractional Charges, 1978-1981, 1 publication

   Investigations during period where quarks were thought to exist as single particles, small group at SFSU.

   "Results Of A Search For Fractional Charges On Mercury Drops"
   C. L. Hodges, P. Abrams, A. R. Baden, R. W. Bland, D. C. Joyce, J. P. Royer, F. W. Walters and E. G. Wilson et al.. Phys. Rev. Lett. 47, 1651 (1981).

2. e^+e^- collisions at SLAC, Mark II Collaboration, 1982-1986, 65 publications

   Investigating bottom quarks, search for top and Higgs particles, DOE funded collaboration ~100. Thesis on possible CP violation in strange baryon (Λ^0) decay.
   "Λ Production in e^+e^- Annihilation at 29 GeV", Mark II Collaboration, Phys. Rev. Lett. 54 (1985) 2071-2084, Erratum: PRL 55 (1985) 263.

3. Proton–anti-proton at Fermilab:
   a. CDF Collaboration, 1986-1990, 78 publications
   b. DZero Collaboration, 1989-2004, 321 publications

   Search for top quark, Higgs boson, new physics beyond Standard Model. Culminating in discovery of top quark 1995 where I played a key role in DZero, inventing new kinematic handles.

   "Observation of the top quark", DZero Collaboration, Phys. Rev. Lett. 74 (1995) 2632

   Also single author paper summarizing techniques used in these experiements:

   "Jets and Kinematics in Hadronic Collisions, International Journal of Modern Physics A13 (1998) 1817

4. Proton-proton collisions at CERN Large Hardon Collider, CMS Collaboration, 725 publications

   Search for Higgs boson and new physics beyond Standard Model. Higgs discovery 2013

   "Observation of a New Boson with Mass near 125 GeV in pp Collisions at $\sqrt{s}$ = 7 and 8 TeV", CMS Collaboration, JHEP 1306 (2013) 081

Research Grants and Projects

1. Long standing member of Department of Energy (DOE) "umbrella" grant at Maryland, initially averaging $1.6M/year and reducing to approximately $1.0M/year today.

2. Managed $5M subproject of CMS construction project to design and construct readout electronics for hadron calorimeter (HCAL) (approximately $80M project).

3. First leader of HCAL upgrade design. Am now Chair of Institution Board, an international body with overall oversight of new CMS endcap upgrade project (approximately $120M project).

Department of Energy, office of High Energy Physics

Accepted a temporary IPA assignment in the Office of High Energy physics August 2018 – August 2020

Duties:

- Program manager for the CMB-S4 project. This is a $600M joint NSF and DOE project to build microwave telescopes at the South Pole Research Station and in Atacama Chile to study the cosmic microwave background.
- Participate in program management of the Cosmic Frontier
- Participate in program management of the Quantum Information Science (QIS) program

University of Maryland Leadership Summary

University of Maryland, Physics Department Highlights:

1. Largest and most prestigious department on campus: $12M base budget, currently >$30M research expenditures, 60 faculty, 700 students, 200 staff, postdocs, research scientists, visitors, lecturers, etc.
2. Top 10-15 physics programs in USA, top 5 of public Research 1 Universities

Positions and Highlights:

1. Associate Chair for Facilities, 1999-2006.

   Overall management of research facilities and personnel/staff. Biggest accomplishment was from working with then-chair to propose construction of new physics building, completed in 2014 at cost of $135M (Physical Sciences Complex, PSC)

2. Department Chair, 2006-2016

   Led effort bringing academic and facilities together to design and construct new PSC, successful in augmenting state funds with "Recovery Act" funds from Obama Administration, oversaw occupancy of new building including extensive laboratory and infrastructure enhancements and customization for individual PIs.

   Hired exceptional cadre of faculty during 10 years of flat or reduced budgets. Started several specialized subject centers (particle theory, astrophysics, condensed matter), oversaw growth of $5M/year direct investment by NIST in quantum information, and NSF Physics Frontier Center (interface between atomic and condensed matter physics).

   Advocated for the faculty in awards, recognition, membership in National Academy, etc.

3. Chair IT Council, 2014-2016

   Worked with campus VP IT as chair of Campus Senate committee, IT Council, for shared governance in IT issues. Commission risk analysis of enterprise systems, migration to more secure campus internet, and assorted IT issues.