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### **Education and Training**

University of Wisconsin, Madison, 1968, B.S. Physics  
University of Illinois, Urbana-Champaign, 1970, M.S. Physics  
Michigan State University, East Lansing, 1973, Ph. D., Physics

### **Research and Professional Experience**

Program Director in Elementary Particle Physics, U.S. National Science Foundation,  
2004-2007 and 2011-2014  
Associate Vice President for Research, University of Notre Dame, 2008-2009  
Professor of Physics, University of Notre Dame, 1986-present  
Associate Professor of Physics, University of Notre Dame, 1982-1986  
Assistant Professor of Physics, University of Notre Dame, 1977-1982  
Assistant Professor of Physics, Northwestern University, 1976-1977  
Research Associate, Northwestern University, 1973-1976  
Research Assistant, Michigan State University, 1970-1973

### **Selected Publications**

1. "Performance of multicladd scintillating and clear waveguide fibers read out with visible light photon counters", B. Baumbaugh, et al., Nucl. Instr. & Meth. in Phys. Res. A345 (1994) 271.
2. "The Use of Scintillating Fibers for Charged Particle Tracking", R.C. Ruchti, Annual Review of Nuclear and Particle Science, **46** (1996) 281.
3. "Performance of a Large Scale Scintillating Fiber Tracker Using VLPC Readout," D. Adams, et al. [Dzero Collaboration], IEEE Trans. Nucl. Sci. 42 (1995) 401-406.
4. "The Upgraded D0 Detector," A. Abazov, *et al.* [Dzero Collaboration], NIM A 565 (2006) 463
5. "Fast, Long-Wavelength Scintillators and Waveshifters", K. Andert, et al, Astroparticle, Particle and Space Physics, Detectors and Medical Physics Applications, Proceedings of the 9<sup>th</sup> Conference, M. Barone, E. Borch, A. Gaddi, C. Leroy, L. Price, P.-G. Rancoita, and R. Ruchti, eds., World Scientific (2006) 389.
6. "The CMS barrel calorimeter response to particle beams from 2 to 350 GeV/c", S. Abdullin, et al, Eur. Phys. J. C 60, 359-373 (2009)
7. "Radiation damage studies of silicon photomultipliers for the CMS HCAL phase I upgrade", Y. Musienko, et al, NIM A 787 (2015) 319-322.
8. "The Compact Muon Solenoid Phase II Upgrade Technical Proposal", V. Khachatryan, et al [CMS Collaboration], CERN-LHCC-2015-010.
9. "Parameters of the preproduction series SiPMs for the CMS HCAL phase I upgrade", A. Heering, et al, NIM A 824 (2016) 115-118.
10. "Effects of very high radiation on SiPMs", A. Heering, et al, NIM A 824 (2016) 111-114.

11. "Search for the associated production of the Higgs boson with a top-quark pair," V. Khachatryan *et al.*, JHEP 1409, 087 (2014), Erratum-ibid 1410, 106 (2014)
12. "Search for a standard-model-like Higgs boson with a mass in the range 145 to 1000 GeV at the LHC," S. Chatrchyan *et al.*, Eur. Phys. J. C 73, 2469 (2013)
13. "Observation of a new boson with mass near 125 GeV in pp collisions at  $\sqrt{s} = 7$  and 8 TeV," S. Chatrchyan *et al.*, JHEP 1306, 081 (2013)
14. "Search for the standard model Higgs boson produced in association with a top-quark pair in pp collisions at the LHC," S. Chatrchyan *et al.*, JHEP 1305, 145 (2013)
15. "A New Boson with a Mass of 125 GeV Observed with the CMS Experiment at the Large Hadron Collider," S. Chatrchyan *et al.*, Science 338, 1569 (2012).

### **Synergistic Activities**

1. Co-Coordinator, CMS Shashlik Calorimeter Working Group, 2014-present
2. Secretary, CMS Collaboration Board, 2011-2012
3. Co-coordinator, CMS Forward Calorimetry Taskforce, 2009-2013
4. Member, High Energy Physics Advisory Panel (HEPAP) 2003-2005
5. Co-founder, QuarkNet 1997
6. Member Optical Society of America

### **Honors:**

1. AAAS Fellow
2. APS Fellow

### **Collaborators and Co-editors:**

CERN CMS Collaboration: Todd Adams (Florida State), Nural Akchurin (Texas Tech), Andrew Askew (Florida State), Pawel de Barbaro (Rochester), Alberto Belloni (Maryland), Adolf Bornheim (Caltech), Bradley Cox (Virginia), Gunther Dissertori (ETH Zurich), Sarah Eno (Maryland), James Freeman (Fermilab), James Hirschauer (Fermilab), Robert Hirsosky (Virginia), Alexander Ledovskoy (Virginia), Paolo Meridiani (INFN Roma1), Jane Nachtman (Iowa), Francesca Nessi-Tedaldi (ETH Zurich), Christopher Neu (Virginia), Harvey Newman (Caltech), Yasar Onel (Iowa), Tommaso Tabarelli-de Fatis (INFN Milano-Bicocca), Renyuan Zhu (Caltech)

QuarkNet Collaboration: Marjorie Bardeen (Fermilab),

### **Graduate Advisors and Postdoctoral Advisors:**

Ph. D. Advisor: Maris Abolins, Michigan State University;

Post Doctoral Sponsors: Jerome Rosen and Bruno Gobbi (deceased), Northwestern University

### **Advisees:**

Ph Ds: Dr. Richard Pemper, Dr. Patrick Mooney, Dr. Edward Rojek, Dr. Joseph Godfrey, Prof. Miguel Sarmiento, Dr. Robert Gardner (Chicago), Prof. Raymond Mountain (Syracuse), Dr. Christopher Kennedy, Dr. Danilo Puseljic, Dr. Zeyuan Wu, Dr. James Jaques, Prof. Robert Kehoe (Southern Methodist), Dr. Evgeny Popkov, Dr. Hai Zheng, Dr. Yuri Pogorelov, Dr. Peter Svoisky (Fermilab), Dr. Tessa Pearson-Berry

Masters: Mr. Scott Grenquist (M.S., Electrical Engineering)

Postdoctoral Associates: Prof. Nancy Marinelli (Notre Dame), Prof. Daniel Karmgard (Notre Dame), Prof. Loretta Dauwe (Michigan Flint)