

# Curriculum Vitae — September 25, 2020

## Heidi M Schellman

Department of Physics  
Oregon State University  
301 Weniger Hall  
Corvallis, OR, 97331  
Phone: +1-541-737-4631  
Email: *Heidi.Schellman@oregonstate.edu*

## Education and Employment

Primary Position	Joint Appointment
Professor and Head of Physics College of Science Oregon State University	Visiting Scientist Scientific Computing Fermilab

### Area of Interest: Experimental High Energy Physics

My research interest is in experimental study of the interface between electro-weak and strong interactions. Major results include jet fragmentation and fragmentation functions (Mark II, D0), structure functions and parton distributions (CTEQ, CCFR, NuTeV, FNAL E665 and D0), measurements of the weak mixing angle (NuTeV and D0) and quasi-elastic neutrino scattering (MINERvA). On the experimental side, I have led the computing infrastructure efforts for CCFR, NuTeV, D0, MINERvA and DUNE over the past 3 decades.

## Education

B. S. Degree, June 1977, Stanford University (Mathematics)  
M.A. Degree, June 1980, University of California. Berkeley (Physics)  
Ph.D. Degree, December, 1984, University of California. Berkeley (Physics)  
Ph.D. Advisor: George Trilling

## Employment

- 1975- 1976 Lab Assistant, Institute for Molecular Biology, University of Oregon  
1978 Programmer, PEP Project, SLAC  
1978 - 1979 Teaching Assistant, U.C. Berkeley  
1979 - 1984 Research Assistant, Lawrence Berkeley Laboratory  
Mark II collaboration  
1985 - 1988 Research Associate, EFI, University of Chicago  
CCFR Collaboration  
1988 - 1990 Wilson Fellow, Fermi National Accelerator Laboratory  
E665 Muon Scattering Collaboration  
1990 - 1995 Assistant Professor, Dept. of Physics and Astronomy,  
Northwestern University  
E665 and D0 Collaborations  
1995 - 2000 Associate Professor, Dept. of Physics and Astronomy,  
Northwestern University  
D0 and NuTeV Collaborations  
1999-2000 Staff Scientist at Fermilab (leave of absence from Northwestern)  
2000-2014 Professor, Dept. of Physics and Astronomy,  
Northwestern University  
CTEQ, D0,  $g - 2$  and MINERvA Collaborations  
2000-2002 Associate Chair, Department of Physics and Astronomy, Northwestern University  
2004-2007 Associate Dean for Research and Graduate Studies  
Weinberg College of Arts and Sciences, Northwestern University  
2010-2014 Chair, Department of Physics and Astronomy, Northwestern University  
2015-present Head, Department of Physics, Oregon State University  
2019-present Joint Appointment with Fermilab Scientific Computing  
MINERvA and DUNE Collaborations

## Awards

- 1988 Robert Rathbun Wilson Fellowship,  
Fermi National Accelerator Center  
1991 Department of Energy Outstanding Junior Investigator Award  
1993 A.P. Sloan Fellowship  
1997 Associated Student Government Faculty Honor Roll  
2000 Elected Fellow of the American Physical Society  
2000 Fermilab Employee Recognition Award  
2015 APS Division of Particles and Fields Mentoring Award  
2017 Distinguished Referee, European Physical Journal  
2019 European Physical Society High Energy and Particle Physics Prize  
(with 1,000 members of the D0 and CDF Collaborations)

## Graduate Students and Postdoctoral Trainees

### *Doctoral Students*

Panagiotis Spentzouris, 1991-1994, Fermilab Quantum Institute  
Tacy Joffe-Minor, 1992-1997, Instructor, Dept. of Physics, University of Arkansas  
Tracy Taylor-Thomas, 1992-1997, Director of Program Management at Cloudability  
Robert Snihur, 1994-2000, System Administrator, US-CMS project, University of Nebraska  
Geraldyn "Sam" Zeller, 1995-2002, Spokesperson MicroBooNE collaboration, Fermilab  
Timothy Andeen, 2004-2008, Assoc. Prof., U.T. Austin  
Sahal Yacoob, 2005-2010, Lecturer, Univ. of Cape Town  
Cheryl Patrick, 2010-2016, Postdoc, University College London  
Amit Bashyal, 2015-  
Maggie Greenwood, 2017-2019, MS degree  
Sean Gilligan, 2018-  
Noah Vaughan, 2019-  
Jacob Capps, 2020-

### *Postdoctoral Fellows Supervised*

Iain Bertram, 1997-2000, Professor, University of Lancaster  
Lucyna de Barbaro, 1998-2001, Conservation Consultants, Pittsburgh  
Harald Fox, 2000-2004, Senior Lecturer, University of Lancaster  
Gregory Davis, 2004-2005, Research Staff, Institute for Defense Analyses  
Jonathan Hays, 2005-2007, Senior Lecturer, Queen Mary College, London  
Michael Kirby, 2007-2010, Scientist 1, Fermilab  
Laura Fields, 2011-2015, Scientist 1, Fermilab  
Leah Welty-Rieger, 2012-2014, GEANT4 Consultant, Chicago Area  
Mateus Carneiro, 2016-2019, now Postdoc at Brookhaven National Lab

## Service

1987	Run coordinator, CCFR experiment
1991-1997	Spokesperson of Fermilab Experiment E665
1993-1995	Member, Fermilab User's Executive Committee
1996-1998	Member, APS Division of Particles and Fields Executive Committee
1996-1998	D0 Collaboration QCD convener
1996-1999	Member, Dept. of Energy High Energy Physics Advisory Panel
1997-2000	Member, Outstanding Dissertation Committee, URA
1998-2001	Member, Large Hadron Collider Council, European Center for Nuclear Research (CERN)
2000	Co-leader Fermilab Neutrino Factory Physics Study
2000-2001	Co-leader D0 software and computing project
2001-2005	Member, Fermilab Program Advisory Committee
2001-2002	Chair, APS Division of Particles and Fields Nominating Committee
2005-2007	Member, DOE/NSF Neutrino Scientific Advisory Group (NUSAG)
2005-2012	Member of the Board, Fermilab Research Association
2007-2008	Chair, D0 Collaboration Institutional Board
2007-2009	D0 Collaboration Electroweak Convener
2008-2012	Chair, FRA Visiting Scholars Selection Committee
2008-2014	Computing Infrastructure Coordinator, MINERvA collaboration
2009-	D0 representative, Tevatron Electroweak Working Group (TEVEWWG)
2010-2012	Elected Member, D0 collaboration Advisory Council
2010-2013	Sanford Underground Research Facility Program Advisory Committee
2012-2014	Member and Secretary, C11 Committee (Particle Physics) International Union for Pure and Applied Physics
2013-2016	Elected member, MINERvA Executive Committee
2014-2019	Jefferson Laboratory Program Advisory Committee
2015	Brookhaven Laboratory Nuclear and Particle Physics Program Advisory Committee
2015	Member, NSF/DOE Nuclear Science Long Range Planning Working Group
2015-present	CERN Scientific Policy Committee
2015-2017	Member and Vice Chair, IUPAP C11 Commission(Particle Physics)
2018-2020	Chair, IUPAP C11 Commission
2017-2018	Computing Coordinator for the DUNE collaboration
2018-	Member DUNE collaboration executive board
2018-	Cottrell Scholar Selection Committee
2018-present	Leader, International DUNE Collaboration Computing Consortium
2020-	Electron-Ion Collider Detector Advisory Committee

## Publications: Selected Papers

Co-Author on 678 publications. High Energy Physics lists all contributors on all papers so these numbers are larger than in other fields. I list the papers to which I made the most significant contributions below. The full list is available at <http://inspirehep.net>.

- [1] N. Lockyer *et al.*, [Mark II Collaboration], “Measurement of the Lifetime of Bottom Hadrons,” *Phys. Rev. Lett.* **51**, 1316 (1983). doi:10.1103/PhysRevLett.51.1316. 335 citations counted in INSPIRE as of October 18, 2019.
- [2] W. K. Tung, J. G. Morfin, H. Schellman, S. Kunori, A. Caldwell, F. I. Olness, “Structure Functions and Parton Distributions,” in 4th DPF Summer Study on High-energy Physics in the 1990s, Snowmass, CO, USA, 27 Jun - 15 Jul 1988, pp.305-330. FERMILAB-CONF-89-026 This study led to the Morfin-Tung and CTEQ PDF sets.
- [3] M. R. Adams *et al.*, [ E665 Collaboration], “Proton and deuteron structure functions in muon scattering at 470-GeV,” *Phys. Rev.* **D54**, 3006-3056 (1996).
- [4] B. Abbott *et al.* [D0 Collaboration], “Determination of the absolute jet energy scale in the D0 calorimeters,” *Nucl. Instrum. Meth. A* **424**, 352 (1999) doi:10.1016/S0168-9002(98)01368-0 [hep-ex/9805009].
- [5] B. Abbott *et al.*, [D0 Collaboration], “The inclusive jet cross section in  $\bar{p}p$  collisions at  $\sqrt{s} = 1.8$  TeV,” *Phys. Rev. Lett.* **82**, 2451-2456 (1999). [hep-ex/9807018]. 124 citations counted in INSPIRE as of October 18, 2019.
- [6] C. Albright *et al.*, S. Geer and H. Schellman editors, “Physics at a Neutrino Factory,” FERMILAB-FN-0692. Aug 2000. 133 pp. arXiv:hep-ex/0008064
- [7] G. P. Zeller *et al.*, [NuTeV Collaboration], “A Precise determination of electroweak parameters in neutrino nucleon scattering,” *Phys. Rev. Lett.* **88**, 091802 (2002). [hep-ex/0110059].
- [8] V. M. Abazov *et al.* [D0 Collaboration], “Measurement of the W Boson Mass with the D0 Detector,” *Phys. Rev. Lett.* **108**, 151804 (2012). [arXiv:1203.0293 [hep-ex]]
- [9] V. M. Abazov *et al.* [D0 Collaboration], “Measurement of  $\sin^2 \theta_{\text{eff}}^{\ell}$  and Z-light quark couplings using the forward-backward charge asymmetry in  $p\bar{p} \rightarrow Z/\gamma^* \rightarrow e^+e^-$  events with  $\mathcal{L} = 5.0 \text{ fb}^{-1}$  at  $\sqrt{s} = 1.96$  TeV,” *Phys. Rev. D* **84**, 012007 (2011) [arXiv:1104.4590 [hep-ex]].

- [10] L. Fields *et al.* [MINERvA Collaboration], “Measurement of Muon Antineutrino Quasi-Elastic Scattering on a Hydrocarbon Target at  $E_\nu \sim 3.5$  GeV,” *Phys. Rev. Lett.* **111**, 022501 (2013) [arXiv:1305.2234 [hep-ex]].
- [11] T. A. Aaltonen *et al.* [CDF and D0 Collaborations], “Combination of CDF and D0  $W$ -Boson Mass Measurements,” *Phys. Rev. D* **88**, 052018 (2013) [arXiv:1307.7627 [hep-ex]].
- [12] A. V. Kotwal, H. Schellman and J. Sekaric, “Review of Physics Results from the Tevatron: Electroweak Physics,” *IJMPA*, **30**, 06 (2015). arXiv:1409.5163 [hep-ex].
- [13] C. E. Patrick *et al.* [MINERvA Collaboration], “Measurement of the Muon Antineutrino Double-Differential Cross Section for Quasielastic-like Scattering on Hydrocarbon at  $E_\nu \sim 3.5$  GeV,” *Phys. Rev. D* **97**, no. 5, 052002 (2018) doi:10.1103/PhysRevD.97.052002 [arXiv:1801.01197 [hep-ex]].
- [14] D. Ruterbories *et al.* [MINERvA], *Phys. Rev. D* **99**, no.1, 012004 (2019) doi:10.1103/PhysRevD.99.012004 [arXiv:1811.02774 [hep-ex]].
- [15] B. Abi *et al.* [DUNE Collaboration], “The DUNE Far Detector Interim Design Report Volume 1: Physics, Technology and Strategies,” arXiv:1807.10334 [physics.ins-det].
- [16] H. Schellman [DUNE], “Computing for the DUNE Long-Baseline Neutrino Oscillation Experiment,” [arXiv:2004.09037 [physics.ins-det]].
- [17] B. Abi *et al.* [DUNE], “Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume I Introduction to DUNE,” [arXiv:2002.02967 [physics.ins-det]].
- [18] B. Abi *et al.* [DUNE], “Deep Underground Neutrino Experiment (DUNE), Far Detector Technical Design Report, Volume II DUNE Physics,” [arXiv:2002.03005 [hep-ex]].
- [19] M. Carneiro *et al.* [MINERvA], “High-Statistics Measurement of Neutrino Quasielastic-like Scattering at 6 GeV on a Hydrocarbon Target,” *Phys. Rev. Lett.* **124**, no.12, 121801 (2020) doi:10.1103/PhysRevLett.124.121801 [arXiv:1912.09890 [hep-ex]].