

Biographical Sketch – Wesley H. Smith

Professional Preparation

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|-----------------------------------|---------------------|----------|-----------|
| Harvard University | Physics | A.B/A.M. | 1976 |
| University of California-Berkeley | Physics | Ph.D. | 1981 |
| Columbia University | High Energy Physics | Post Doc | 1981-1982 |

Appointments

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|---------------------------------|---------------------------------|--------------|
| Bjorn Wiik Professor of Physics | University of Wisconsin-Madison | 2006-Present |
| Professor | University of Wisconsin-Madison | 1992-2006 |
| Associate Professor | University of Wisconsin-Madison | 1988-1992 |
| Associate Professor | Columbia University | 1987-1988 |
| Assistant Professor | Columbia University | 1982-1987 |

Awards.

| | |
|---|------|
| National Science Foundation Presidential Young Investigator Award | 1984 |
| Exxon Education Foundation Award | 1984 |
| Department of Energy Outstanding Junior Investigator Award | 1987 |
| Vilas Associate, University of Wisconsin | 1995 |
| Election to Fellowship, American Physical Society | 1996 |
| WARF Kellet Mid-Career Faculty Researcher Award, U. Wisconsin | 1999 |
| Named Professorship, U. Wisconsin | 2006 |

Research Program

As Trigger Coordinator of the CMS experiment at the CERN LHC, Prof Smith led an international team of more than 100 physicists responsible for reducing the input rate of a billion proton interactions every second by a factor of about 10 million to 500 per second, by processing data from all over the CMS detector in scores of racks of high speed electronics (the design and construction of which was also led by Prof. Smith as Trigger Project Manager) and further analyzing with software algorithms on a 20k core computer farm. He was responsible for the selection of all of the data producing the discovery of the Higgs boson by CMS and also used for over 600 publications. Among many results, the UW group on CMS, which Prof. Smith leads, is responsible for studies of the Higgs-like boson decay to taus, electrons and muons and measurements of W and Z boson production accompanied by hadron jets. The group built and operated the CMS Regional Calorimeter Trigger as well as the ZEUS Calorimeter Trigger. Prof. Smith co-chaired the CMS group determining the upgrades of the CMS Trigger for the ultimate luminosities and energies expected from the LHC (in the CMS 2015 HL-LHC Technical Proposal). 4 of Prof. Smith's former students are physics faculty, including 2 women.

Synergistic Activities

- Spokesman, Fermilab E-770: CCFR Neutrino Experiment, 1986 – 1998.
- Trigger Technical Coordinator/Convener. ZEUS Experiment, DESY, 1988-2007.
- Department of Energy High Energy Physics Advisory Panel, 1995-8
- Chair, U.S. Zeus Executive Committee, DESY, 1995-1997, 2003-6
- Vice-Chair, DOE and NSF HEP Subpanel on the University Research Program, 2006-7
- Trigger Project Manager/Trigger Coordinator, CMS Experiment, CERN, 1994 - 2012

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- Co-chair, CMS Trigger Performance & Strategy Working Group, 2012 – 2015
- US CMS Trigger Proj. Mgr. 1997 – present, Trigger Upgrade PM, 2013-present

(i) Thesis Advisor

I have been a thesis advisor to 30 graduate students who have earned a Ph.D. 3 have earned a Ph.D. in the last 3 years, listed. I am currently advisor to 4 students. (*=expected)

| Name | Degree | Year | Current Post | Current Institution |
|----------------|--------|------|----------------|---------------------|
| Usama Hussain | * | * | Research Asst. | U. Wisconsin (CMS) |
| Nicholas Smith | * | * | Research Asst. | U. Wisconsin (CMS) |
| Laura Dodd | * | * | Research Asst. | U. Wisconsin (CMS) |
| Nate Woods | * | * | Research Asst. | U. Wisconsin (CMS) |
| Tom Perry | Ph.D. | 2016 | Research Asst. | Florida State (CMS) |
| Austin Belknap | Ph.D. | 2015 | Software Eng. | EPIC systems |
| Isobel Ojalvo | Ph.D. | 2014 | Dicke Fellow | Princeton U. (CMS) |

(ii) Postgraduate-Scholar Sponsor

I have been postdoctoral sponsor for 12 people. Below are those within the last 3 years.

| Name | Position | Years | Current Post | Current Institution |
|------------------|-----------|------------|---------------|-------------------------|
| Cecile Caillol | Postdoc | 2016-pres. | Postdoc | University of Wisconsin |
| Bhawna Gomers | Postdoc | 2015-pres. | Postdoc | University of Wisconsin |
| Isobel Ojalvo | Postdoc | 2014-2016 | Dicke Fellow | Princeton U. (CMS) |
| Maria Cepeda | Postdoc | 2011-2015 | Fellow | CERN (CMS) |
| Armando Lanaro | Scientist | 2003-pres. | Scientist/CMS | University of Wisconsin |
| Pamela Klabbbers | Scientist | 2000-pres. | Scientist/CMS | University of Wisconsin |
| Alexandre Savin | Scientist | 2000-pres. | Scientist/CMS | University of Wisconsin |

Full CV is available on: <http://www.hep.wisc.edu/wsmith/vita.pdf>

Selected Publications in Refereed Journals (out of a total of more than 900)

1. W.H. Smith, “Triggering at the LHC”, Annual Review of Nuclear and Particle Science, Vol. 66, November 2016, [doi: 10.1146/annurev-nucl-102115-044713](https://doi.org/10.1146/annurev-nucl-102115-044713)
2. CMS Collaboration, “Precise determination of the mass of the Higgs boson and tests of compatibility of its couplings with the standard model predictions using proton collisions at 7 and 8 TeV”, Euro. Phys. J. C 75 (2015) 212.
3. CMS Collaboration, “Study of the Mass and Spin-Parity of the Higgs Boson Candidate via Its Decays to Z Boson Pairs”, PRL 110 (2013) 081803.
4. CMS Collaboration, “Measurement of W+W- and ZZ production cross sections in pp collisions at $\sqrt{s}=8$ TeV”, Phys. Lett. B 721 (2013) 190–211.
5. CMS Collaboration, “Observation of a new boson at a mass of 125 GeV with the CMS experiment at the LHC”, Phys. Lett. B 716, 30 (2012). (> 600 citations since published)
6. CMS Collaboration, “Search for neutral Higgs bosons decaying to tau pairs in pp collisions at $\sqrt{s}=7$ TeV”, Phys. Lett. B 713 (2012) 68-90.
7. CMS Collaboration, “Search for the standard model Higgs boson in the $H\rightarrow ZZ\rightarrow l^+l^-\tau^+\tau^-$ decay channel in pp collisions at $\sqrt{s}=7$ TeV”, J. High Energy Phys. 03 (2012) 081..
8. P. Klabbbers et al., “CMS calorimeter trigger Phase I upgrade”, JINST 7, C01046 (2012).
9. ZEUS Collaboration, “Inclusive-jet photoproduction at HERA and determination of α_s ” Nucl. Phys. B 864, 1 (2012)
10. ZEUS Collaboration, “Measurement of isolated photons accompanied by jets in deep inelastic ep scattering”, Phys. Lett. B 715, 88 (2012).