
DR. SIMONA ROLLI

301-903-0504
rolli@fnal.gov

Summary

Dr. Simona Rolli is a Program Manager at the U.S. Department of Energy, Office of Science, Office of High Energy Physics. She is managing federally funded programs in theoretical and experimental High Energy Physics (HEP), carried out at National Laboratories and public and private universities. With a typical yearly budget of about \$780M, the Office of High Energy Physics sustains the entire HEP infrastructure in the U.S. (Energy, Cosmic and Intensity frontier experiments, Accelerator R&D, Detector R&D and Theoretical Research).

Dr. Rolli moved to DOE in March 2011, after a fifteen-year career in particle physics. She obtained her Ph.D. in theoretical particle physics, in 1996, in Italy and moved to the United States, where she spent most of her scientific career at Fermi National Accelerator Laboratory (Fermilab), as an experimental Research Scientist. She co-authored more than 1000 publications in peer-reviewed journals. She is a member of the Particle Data Group Collaboration, an international collaboration charged with summarizing Particle Physics results, as well as related areas of Cosmology and Astrophysics, publishing the Review of Particle Physics.

Experience

Deputy Federal Project Director (in training), U.S. Department of Energy, on detail assignment at the Fermi National Accelerator Laboratory Site Office, Batavia, IL – April 2015-October 2015

Deputy Federal Project Director (FPD) for the Mu2e project (line item project \$273M) and Fermi Site Office Liaison for the LCLS-II project (line item project \$1B).

Duties in this position include: support of the FPD in executing all of his/her functions and responsibilities, on a day-to-day basis, by defining project cost, schedule, performance and scope baselines; implementing procedures for baseline management and control, approve baseline changes and make recommendations for baseline changes needed at higher authority levels; coordinate with the Fermilab Site Office Manager and Contracting Officer regarding approval of subcontract procurement actions performed by Fermilab; aid in the compliance by the Project to ensure design, construction, environmental, safety, security, health and quality efforts comply with appropriate DOE and contract requirements and other applicable regulations; maintain particular interface and communication with facilities and projects external to the project to monitor progress and status in order to help assure that efforts are integrated sufficiently with the larger laboratory program.

Physicist, US Department of Energy, Washington, D.C. — 2011- Present

Program Manager at the Office of Science, Office of High Energy Physics, for the following portfolios:

Theoretical High Energy Physics (March 2011- present) - budget ~\$50M

Early Career Research Program (HEP program), FY15 Call (June 2014- April 2015) - budget \$3.5M

Proton Accelerator Physics at the Energy Frontier (Jan 2012-Dec 2012) budget ~ \$80M

LHC Operations (March 2011- Sept 2012) - budget ~\$60M

LHC ATLAS Detector Upgrade Project - MIE (Sept 2012 - present) - budget \$32M

LHC CMS Detector Upgrade Project - MIE (Sept 2012 - present) - budget \$32M

Duties in this position include:

Acting as a recognized technical authority and expert in scientific research, user facility operations and DOE project management, advising DOE and representing DOE to the external community by: tracking current developments in science and technology through discussion with scientists and technical program managers within DOE, DOE laboratories, universities, other federal agencies, private research institutions, industry and foreign research institutions; evaluating the needs and opportunities of her portfolio based on the knowledge of scientific and technical advances; and participating in the strategic planning of the national High Energy Physics (HEP) Program sponsored by the Office of Science at the U.S. Department of Energy.

Dr. Rolli participated in DOE panel reviews as a recognized technical and scientific expert: SLAC, LCLS-II Project Gate Reviews - Sept 2014 and April 2015; Brookhaven National Laboratory, Core Infrastructure Revitalization Mission Validation Review - July 2015; SLAC, FACET-II Project Gate Review - October 2015.

She developed white papers and prepared responses to Congressional inquiries and issue papers; she contributes to the preparation of budget narrative, and presentation material input to the Office of Science, DOE management and other U.S. government inquiries related to the management of her portfolio.

She routinely prepares presentations, reports and briefings on the status of projects and research programs to the Office of Science, advisory panels and scientific community at large. She gave presentations to the DOE/SC Energy System Acquisition Advisory Board (ESAAB); the HEP Advisory Panel (HEPAP); and Principal

Investigators supported by the Office of High Energy Physics during Pls Meetings and individual site visits.

Preparation of calls for proposals, including Funding Opportunity Announcements for Grants and Cooperative Agreements, Program Announcements for DOE National Laboratories and interagency program announcements. As part of this activity, Dr. Rolli evaluates, on a regular basis, ongoing research efforts (grants to Universities and support of HEP National Laboratories) and new proposals for research (the theoretical HEP portfolio includes about ~100 university grants and 6 national laboratory groups, similarly the Energy Frontier portfolio), facility operations and projects, using personal scientific and technical judgment, setup of individual peer-review, setup of panel peer-review, teleconference meetings and site visits. She organized and chaired the triennial Laboratory Research Program Review in Theoretical Particle Physics in 2011 and 2014; the Laboratory Research Program Review for the Proton Accelerator Physics at the Energy Frontier Program in 2012; and the annual LHC Operations Review in 2012 and 2013. Every year she organizes and chairs the yearly Comparative Review Panel to evaluate all the new and renewing proposals in theoretical HEP (on average 40 to 50 proposals). She organized the review process for the Office of Science Early Career Research Program (HEP Program), and chaired the review panel for the selection of awards following the FY15 Funding Opportunity Announcement. A critical part of these activities includes writing technically accurate recommendations for funding.

Participation in the Office of High Energy Physics Budget Formulation and Budget Execution: Dr. Rolli prepares, justifies and supports the budget related to her portfolio; she selects, implements and manages her portfolio, including acting on emerging opportunity, determining funding levels, and recommending and initiating funding actions; she proposes and implements adjustments to her portfolio, during the budget approval process and in response to new budgetary developments, such as Continuing Resolutions, internal budget adjustments etc.

Research Scientist, Tufts University, Medford, MA – 1997-2011

Dr. Rolli performed research in experimental High Energy Physics, as a member of the CDF Collaboration (Fermilab, USA) and ATLAS Collaboration (CERN, Switzerland).

The Collider Detector at Fermilab (CDF) was a general-purpose detector built to study proton-antiproton collisions at the Fermilab Tevatron. It collected data from 1986 through 2011. Among the most notable results, it's the discovery of the top quark in 1995. ATLAS (A Thoroidal LHC ApparatuS) is an enormous general-purpose detector to study proton-proton collisions at the CERN Large Hadron

Collider. It started taking data in 2009 and in July 2012, together with the CMS Collaboration, the ATLAS Collaboration announced the discovery of the Higgs Boson, for which 3 theoretical physicists received the Nobel Prize in Physics in 2013.

Duties in this position included: performing original scientific research that led to peer-reviewed publications in archival scientific journals in support of a senior researcher's program and/or as part of a collaborative research effort; development of software tools to be used by the rest of the collaboration; various management responsibilities, such as serving as convener of several scientific research groups engaged in research and contributing to establishing research goals and objectives for the larger research program of the experiments; supervising original scientific thesis research efforts of doctoral students or supervised postdoctoral individuals.

Dr. Rolli served as primary author on manuscripts that were published in peer-reviewed archival scientific journals; co-authored peer-reviewed publications in archival scientific journals; served as peer-reviewer for manuscripts submitted by others to archival journals; presented invited papers dealing with results of original fundamental scientific research at international and/or national scientific conferences; presented invited review talk synthesizing results of original scientific research at international and/or national scientific conferences.

Following the recognition of expertise in her field of analysis, in 2007 Dr. Rolli was invited to join the Particle Data Group as co-author of the review on *Leptoquark* particles for recent editions of the Review of Particle Physics. The Review of Particle Physics is the single most cited paper in High Energy Physics.

Visiting Scholar, Lawrence Berkeley National Laboratory, CDF Group, Fermilab – 1996

During this appointment, Dr. Rolli worked with the LBNL CDF group on top physics, following the discovery of the top quark in 1995.

Visiting Scholar, NASA/Fermilab Astrophysics Center and Theory Division, Fermilab – 1994-1995

Completion of original research in preparation of her Ph.D. thesis.

Education

University of Bologna, Italy – *Dottorato di Ricerca* in Theoretical Particle Physics, 1996 (following research and completion and defense of a dissertation at the University of Pavia). The degree is an academic equivalent of an earned doctorate (Ph.D.) in physics by accredited institutions in the United States.

University of Pavia, Italy — *Laurea* (Summa Cum Laude) in Theoretical Particle Physics, 1992 (the program is a continuous curriculum, incorporating undergraduate and graduate studies and it is the academic equivalent of a master's degree in physics by accredited institutions in the United States).

Conservatory of Music “ Arrigo Pedrollo”, Vicenza, Italy — Diploma in Piano Performance, 1987

Skills

Dr. Rolli has excellent analytical abilities: she easily grasps the “big picture” aspects of programs and projects, while maintaining strong attention to details and developmental implications. Over the years she has shown outstanding time management skills, which results in high productivity levels, meeting deadlines in timely fashion, often well ahead of time, and excellent organizational talent. Interestingly she developed this skill since her teen years, as she completed very successfully two separate courses of studies: high school training in humanities and music training in piano performance.

Dr. Rolli has excellent communications skills, both oral and written, as evidenced by numerous talks, presentations, briefings etc. She has a very strong scientific background, with significant experience working in large scientific collaborative environments. She carried on successful work across different High Energy Physics disciplines (theoretical and experimental) in an academic setting, while a full time researcher at Tufts University.

During her time at DOE, Dr. Rolli has acquired significant experience in reviewing large and small research proposals, pre- and post-award management, budget preparation and management. She also possess significant experience in program management and budgeting for large research programs. Dr Rolli has in-depth knowledge of funding agencies, with special reference to DOE/Office of Science and National Science Foundation (NSF), with significant experience in managing inter-agency projects (LHC operations and LHC projects are supported by both NSF and DOE, through Joint Oversight Groups, JOGs) and inter-agency coordination (several HEP theoretical programs are supported by both DOE and NSF).

Dr. Rolli is willing to take on new challenges, as evidenced , for example, by her recent involvement in Federal Project Management at National Laboratories Field Offices.

Miscellanea

Approved for Permanent Residency in the US (green card) under the category of “*Outstanding Researcher*”, Nov 2000 (obtained US citizenship in 2007).

Scientific Referee for Physical Review D; Physics Letter B (recognized as one the most valued reviewers in 2013 and 2014); Annual Review of Particle Physics.

Invited member of Career Panels at the Conference of Undergraduate Women in Physics, University of Illinois Urbana-Champaign, January 2013 and Brookhaven National Laboratory Young Investigators Meeting, November 2014.

Co-Chair of working groups in International Conferences on High Energy Physics.

Author of several presentations on particle physics to audiences of middle/high school students and associations not related to science.

Elected Member of the Fermilab Users Executive Committee (2004-2005). Organizer of the 2004 and 2005 Fermilab Users’ Meeting.

Selected Talks and Presentations

1. “LHC CMS Detector Upgrade Project, CD 2/3 Approval” ESAAB Meeting, November 12, 2014, DOE HQ, Germantown, MD
2. “Theory at DOE-HEP “ HEPAP Meeting, March 13, 2014, Washington, D.C.
3. “ High Energy Theory Program at DOE” Snowmass PI Meeting, UCSB, May 2013
4. “Report from the DOE Office of High Energy Physics”, Fermilab, LHC Users Meeting, October 2012
5. “New Physics Searches at the Tevatron” La Thuile, Aosta Valley, Italy, March 2011.
6. “Status of the Tevatron”, Hadron Collider Physics Symposium, Toronto, Canada, August 2010.
7. “Recent Results from CDF and D0”, PPC2010, Torino, Italy, July 2010.
8. “New Physics Searches at the Tevatron”, PHENO 2010 Phenomenology Symposium, May 2010, Madison Wisconsin.
9. “QCD Results at the Tevatron” La Thuile, Aosta Valley, Italy, February 2010.

-
10. "Search for physics beyond the SM at the Tevatron", Fermilab Users' Meeting, June 2009.
 11. "Search for physics beyond the SM at the Tevatron", invited talk at CIPANP 09, San Diego, May 2009.
 12. "Results from the Tevatron", BNL Forum, BNL, November 2008.
 13. "Search for BSM Physics at the Tevatron", Pheno 2008, Madison WI, April 2008.
 14. "Top Physics at ATLAS", CTEQ Workshop on Early Physics at the LHC, Lake Gull, Michigan, May 2007.
 15. "Top Physics at the LHC", Pascos Conference, Ohio State University, September 2006.
 16. "B-tagging Performances", ATLAS North American Physics Workshop, Boston 2006. "Single Top in Wt Channel", ATLAS Standard Model Workshop, Argonne, April 2006. "Searches for BSM physics at the Tevatron", I.F.A.E., Pavia, April 2006.
 17. "Single Top at Hadron Colliders", I.F.A.E., Pavia, April 2006.
 18. "Recent Results at CDF", BNL HEP Seminar, January 2005.
 19. "Search for Leptoquarks at Hadron Colliders", Tev4LHC workshop, Fermilab, September 2004.
 20. "Recent Results from CDF High PT Physics", Fermilab Wine & Cheese Seminar, April 2004.
 21. "Search for new particles at CDF II", Moriond ElectroWeak, 2003.
 22. "Physics at High Q² and high PT²", Deep Inelastic Conference, Krakow, May 2002.
 23. "Status of the CDF II experiment", LaThuile, March 2002.
 24. "Run II Triggers for SM Higgs Searches", Snowmass, July 2001.
 25. "Use of variable size arrays to model the ATLAS Raw data", Computing in High Energy Physics (CHEP2000), Padova, Italy, Febbraio 2000.
 26. "The CDF Trigger System" Poster presentato a Computing in High Energy Physics (CHEP2000), Padova, Italy, Febbraio 2000.
 27. "Search for new phenomena at the Tevatron", La Thuile, March 1999.

-
28. "Inclusive jet and di-jets production at CDF", Physics in Collisions, Stony Brook, June 1997.
 29. "Top Mass Measurement at CDF", Physics in Collision, Padova, May 1996.
 30. "Fragmentation functions approach in perturbative QCD fragmentation phenomena", Moriond QCD, 1996.

Publications

More than 1000 scientific publications in refereed journals as a member of the CDF and ATLAS Collaborations (Full list available from inspirehep.net).

Selected Publications

1. C. Amsler et al. (Particle Data Group), "The Review of Particle Physics", Phys. Lett. B 667, 1, 2008 and 2009 partial update for the 2010, 2012 and 2014 edition (K. Nakamura et al. (Particle Data Group), J. Phys. G 37, 075021 (2010)).
2. S. Rolli, "Status of the Tevatron Experiments", Proceeding of the Hadron Collider Physics Symposium 2010, e-Print: arXiv:1010.0209 [hep-ex].
3. S. Rolli, "Recent QCD Results from the Tevatron", Proceeding of the 24th Rencontres de Physique de la Valle d'Aoste: Results and Perspectives in Particle Physics, La Thuile, Valle d'Aoste, Italy, Mar 2010, to be published in Il Nuovo Cimento C.
4. S. Rolli, "Searches for new physics at the Tevatron", Proceeding of the 10th Conference on the Intersection of Particle and Nuclear Physics, AIP Conference Proceedings, Vol.1182, p. 156, 2009
5. CDF Collaboration, "Searches for second generation Leptoquarks at CDF Run II", Phys. Rev. D 73, 051102, 2006.
6. CDF Collaboration, "Searches for first generation Leptoquarks at CDF Run II", Phys. Rev. D 72, 051107, 2005.
7. S. Rolli, "Searches for new particles at CDF II", Proceedings of 38th Rencontres de Moriond, Les Arcs, March 2003.
8. G. Moortgat-Pick, S. Rolli, A.F. Zarnecki, "Physics at large p_T and Q^2 ", Acta Phys. Polon. B 33, 3955, 2002.
9. S. Rolli, "The status of the CDFII experiment", Proceedings of the 16th Rencontres de Physique de la Valle d'Aoste: Results and Perspectives in Particle Physics, La Thuile, Valle d'Aoste, Italy, Mar 2001.

-
10. Monarc Collaboration, "Distributed applications monitoring at system and network level", *Comp. Phys. Comm.* 140, 219, 2001.
 11. S. Rolli et al., "Trigger Simulation at CDF", *Proceedings of CHEP 2000, INFN Padova*, p. 250.
 12. S. Rolli et al., "Atlas event data model optimization studies based on the use of segmented VArray in Objectivity/DB.", *Proceedings of CHEP 2000, INFN Padova*, p. 436.
 13. S. Rolli, "Searches for new phenomena at the Tevatron: SUSY and technicolor", *Proceedings of 13th Les Rencontres de Physique de la Valle d'Aoste: Results and Perspectives in Particle Physics, La Thuile, Valle d'Aoste, Italy, Mar 1999*.
 14. M. Cacciari, M. Greco, S. Rolli, A. Tanzini, "Charmed mesons fragmentation functions", *Phys. Rev. D* 55, 2736, 1997.
 15. S. Rolli, "Fragmentation functions approach in pQCD fragmentation phenomena", *Proceedings of 31st Rencontres de Moriond: QCD and High-Energy Hadronic Interactions, Les Arcs, France, Mar 1996*.
 16. S. Rolli, "Top mass measurement at CDF", *Proceedings of "Padua 1996, Hadron collider physics"*, p. 449.
 17. S. Rolli, "Light meson fragmentation functions", *Proceedings of "Minneapolis 1996, Particles and fields, vol. 1"*, p. 599.
 18. Mario Greco and Simona Rolli, "Light mesons production at the tevatron to next- to-leading order", *Phys. Rev. D* 52, 3853, 1995
 19. M. Greco, S. Rolli, A. Vicini, "Inclusive particle photoproduction to next-to-leading order", *Z. Phys. C* 65, 277, 1995.
 20. E. Adelberger et al, "Kinematical probes of neutrino mass", *Proceedings of Snowmass Summer Study 1994*, p.195 .
 21. S. Rolli "Transizioni di fase nel primo universo", *Scientifica Acta, I Quaderni del Dottorato, Pavia, Volume IX, N 2*, p. 77, 1994.
 22. P. Chiappetta, M. Greco, J.P. Guillet, S. Rolli, M. Werlen, "Next-to-leading order determination of pion fragmentation functions", *Nucl. Phys. B* 412, 3, 1994.
 23. M. Greco, S. Rolli, "Next-to-leading order eta production at hadron colliders", *Z. Phys. C* 60, 169,1993.
 24. CDF Collaboration, "Search for ZZ and ZW production in ppbar collisions at $\sqrt{s}=1.96$ TeV", *Phys. Rev. D* 73, 052002, 2006.

-
25. CDF Collaboration, "Measurement of V+A Fraction in Top Decay at CDF at $\sqrt{s} = 1.8 \text{ TeV}$ " Phys. Rev. D 71, 091105, 2005.
 26. CDF Collaboration, "Observation of Orbitally Excited B Mesons in ppbar Collisions at $\sqrt{s} = 1.8 \text{ TeV}$ ", Phys. Rev. D 64, 072002, 2001.
 27. CDF Collaboration, "Search for the charged Higgs boson in the decays of top quark pairs in the e tau and muon tau channels at $\sqrt{s} = 1.8\text{-TeV}$ ", Phys. Rev. D 62, 012004, 2000.
 28. CDF Collaboration, "Measurement of the top quark mass and t anti-t production cross-section from dilepton events at the collider detector at Fermilab", Phys. Rev. Lett. 80, 2784, 1998.
 29. CDF Collaboration, "The mu tau and e tau decays of top quark pairs produced in p anti-p collisions at $\sqrt{s} = 1.8\text{-TeV}$ ", Phys. Rev. Lett. 79, 3585, 1997.