

Curriculum Vitae

Stefano Forte, born June 21, 1961 in Milano (Italy)

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Education

Ph.D. in Physics; Massachusetts Institute of Technology, Cambridge, MA, U.S.A., July 1987

Laurea in Fisica cum laude; Università di Torino, Italy, July 1984

Permanent positions

full professor of theoretical physics at the University of Milan: 2003–to date

senior research physicist, Istituto Nazionale di Fisica Nucleare, sezione di Roma III, Italy: 1998–2002

senior research physicist, Istituto Nazionale di Fisica Nucleare, sezione di Torino, Italy: 1996–1998

research physicist, Istituto Nazionale di Fisica Nucleare, sezione di Torino, Italy: 1989–1996

Post-doctoral positions

Fellow, CERN Theory division, 1993–1995

Postdoctoral Fellow, Service de Physique Théorique, CEN Saclay (France) 1989–1990

Visiting positions

Lagrange Fellow Université Pierre et Marie Curie, Paris, (2015-2016)

Visiting Lecturer École Normale Supérieure de Lyon (2008 and 2011)

PPARC Visiting Scientist, University of Edinburgh (1999-2001 and 2004-2007)

CNRS Visiting Scientist, École Polytechnique, Paris (2003)

Visiting Professor, (IBERDROLA chair) Universitat de Barcelona (1997-1998)

Research management and evaluation

Vice-Chairman of the general review board of Milan University (2010-2015)

Member of the PS-SPS scientific committee of CERN February 2001–January 2005

Evaluator for the British SFTC (2008), the Israel Science foundation (2003, 2008, 2009, 2010), the French National Research Agency (2012), the Polish Academy of Sciences (2013), the Czech Academy of Sciences (2012), the National Italian Research Assessment (CIVR, 2005; VQR, 2013-2014, 2016) and for various Italian national grant programs (2005-to date)

Chairman of the national selection committee for postdoctoral fellowships in theoretical physics of the Italian National Institute of Nuclear Physics (INFN) (2004), *Member* of the same committee (2008),

Member of the national selection committee for early-stage research fellowships of the Italian National Institute of Nuclear Physics (INFN) (2001), *Chairman* of the selection committee for postdoctoral fellowships of the Milan unit of the Italian National Institute of Nuclear Physics (INFN) (2013-2014), *Member* of the selection committee for associate professor positions in the universities of Naples, Milan-Bicocca, Turin, Rome (Roma Tre and La Sapienza) and full professor positions in the universities of Milan-Bicocca, SISSA (Trieste), Padua and Roma Tre (2014-2016), *Member* of the selection committee for a professor position, Université Pierre et Marie Curie, Paris, France (2015).

Research planning

Convener of the gluon fusion subgroup for the CERN Higgs working group (2014-to date)

Convener for parton distributions of the CERN Higgs working group (2010-to date)

Member of the steering committee for the future accelerator LHeC (2007-to date)

Member of the steering committee of the PDF4LHC working group (2008-to date)

Convener of the HERALHC workshop (2004-2008)

Member of the scientific advisory committee for “Future Physics @ COMPASS” (2002)

Member of the advisory committee for “Physics with Polarized Protons at HERA” (1997)

Member NuPECC-DESY-GSI committee “Future of Electron-Nucleus Collisions” (1997)

Membership in committees of international conferences

Higgs Couplings conference series: *member of the international advisory committee* since 2015

Deep-inelastic scattering conference series: *member of the scientific committee* since 2012

Memberships to editorial boards of international journals and book series

The European Journal of Physics C, *associate editor and member of the editorial board* since 2015

Journal of Physics G: *member of the editorial board* since 2014

UNITEX Physics and Astronomy textbook series; Springer: *member of the editorial board* since 2005

Prizes, Awards, Memberships

Scientific Associate, The DISCOVERY centre; The Niels Bohr Institute; University of Copenhagen, 2010-to date

Scientific Associate, The Higgs Institute; Edinburgh University, 2013-to date

Departmental and University Duties

Head of outreach committee, Dept. of Physics, 2006-2011

Member of the directorate board, Physics graduate school, 2009 - to date

Member of the Physics grant and fellowship board of Milan U., 2004-2010

Bibliometric data

	cit.	cit./pap.	h	500+	250+	100+
all times, all papers	13415	67.8	57	5	5	21
all times, published	8200	68.3	49	1	4	16
last 10 years, all papers	9493	99.9	38	5	5	9
last 10 years, published	4976	82.1	30	1	4	7

Total citations, citations per paper, h index, number of papers with more than 500, less than 500 but more than 250 and less than 250 but more than 100 cites (data obtained from the inSPIRE database on November 13, 2016)

Main research results

I have produced very high impact work in the field of PDFs, notably as a leader of the NNPDF collaboration: eight papers with more than 100 citations (one with more than 500) over the last 10 years. High impact work with smaller groups of collaborators includes various aspects of perturbative QCD, specifically, high-energy resummation, to which I have given seminal contributions since the mid-nineties until now, and more recently Higgs physics. Recently, I co-authored the first quantitative cost-benefit analysis of a fundamental research infrastructure. Earlier results include: seminal studies of neutrino deep-inelastic scattering; the discovery of double-asymptotic scaling at HERA; seminal and still widely cited results on the proton spin, including the first (and still competitive) determination of the polarized gluon content of the proton and the explanation of the proton spin puzzle based on instantons; and the formulation of relativistic field theory for anyons.

Some selected publications

- [1] F. Caola, S. Forte, S. Marzani, C. Muselli and G. Vita, “The Higgs transverse momentum spectrum with finite quark masses beyond leading order,” *JHEP* **1608** (2016) 150;
- [2] M. Florio, S. Forte and E. Sirtori, “Forecasting the Socio-Economic Impact of the Large Hadron Collider: a Cost-Benefit Analysis to 2025 and Beyond,” *Techn. For. and Soc. Change* **112** (2016) 38;
- [3] R. D. Ball *et al.* [NNPDF Collaboration]*, “Parton distributions for the LHC Run II,” *JHEP* **1504** (2015) 040; **473 cit.**
- [4] E. R. Nocera *et al.* [NNPDF Collaboration]*, “A first unbiased global determination of polarized PDFs and their uncertainties,” *Nucl. Phys. B* **887** (2014) 276; **71 cit.**
- [5] R. D. Ball *et al.* [NNPDF Collaboration]*, “Parton distributions with QED corrections,” *Nucl. Phys. B* **877** (2013) 290; **191 cit.**
- [6] R. D. Ball, M. Bonvini, S. Forte, S. Marzani and G. Ridolfi, “Higgs production in gluon fusion beyond NNLO,” *Nucl. Phys. B* **874** (2013) 746; **83 cit.**
- [7] S. Forte and G. Watt, “Progress in the Determination of the Partonic Structure of the Proton,” *Ann. Rev. Nucl. Part. Sci.* **63** (2013) 291; **92 cit.**
- [8] R. D. Ball *et al.* [NNPDF Collaboration]*, “Parton distributions with LHC data,” *Nucl. Phys. B* **867** (2013) 244; **712 cit.**
- [9] S. Forte, E. Laenen, P. Nason and J. Rojo, “Heavy quarks in deep-inelastic scattering,” *Nucl. Phys. B* **834** (2010) 116; **133 cit.**
- [10] S. Marzani, R. D. Ball, V. Del Duca, S. Forte and A. Vicini, “Higgs production via gluon-gluon fusion with finite top mass beyond next-to-leading order,” *Nucl. Phys. B* **800** (2008) 127; **137 cit.**
- [11] S. Davidson, S. Forte, P. Gambino, N. Rius and A. Strumia, “Old and new physics interpretations of the NuTeV anomaly,” *JHEP* **0202** (2002) 037; **206 cit.**
- [12] G. Altarelli, R. D. Ball and S. Forte, “Resummation of singlet parton evolution at small x ,” *Nucl. Phys. B* **575** (2000) 313; **117 cit.**
- [13] G. Altarelli, R. D. Ball, S. Forte and G. Ridolfi, “Determination of the Bjorken sum and strong coupling from polarized structure functions,” *Nucl. Phys. B* **496** (1997) 337; **247**

cit.

[14] R. D. Ball and S. Forte, Phys. Lett. B **335** (1994) 77; **184 cit.**

[15] S. Forte, “Quantum mechanics and field theory with fractional spin and statistics,” Rev. Mod. Phys. **64** (1992) 193; **155 cit.**

[16] S. Forte, “Perturbative and Nonperturbative Anomalous Contributions to the Polarization of the Proton,” Phys. Lett. B **224** (1989) 189; **99 cit.**

* *In all NNPDF papers I am corresponding author and spokesperson of the collaboration.*

Some recent invited talks

2016: Karlsruher Graduiertenkolleg (Freudenstadt, Germany): invited lecture course; Resummation and parton showers (Paris, France): invited talk; Loopfest (Buffalo, NY, USA): invited talk; Future challenges for precision QCD (Durham, UK): invited review talk; SEARCH workshop (Oxford, UK): invited participant.

2015: DIS (Dallas, USA): conference opening talk; LHCP (St. Petersburg, Russia): plenary talk; Higgs Couplings (Lumley Castle, UK): invited talk; Higgs Hunting (Orsay, France): plenary talk.

2014: ICHEP (Valencia, Spain): convenor of QCD session; SM@LHC (Madrid): plenary talk; Higgs Couplings (Torino, Italy): invited talk.

2013: ISMD (Chicago): plenary talk; SEARCH workshop (Stony Brook U., USA): invited participant; BEAUTY (Bologna): plenary talk; Higgs Couplings (Freiburg, Germany): invited talk; Resummation and parton showers (Durham, UK): invited review talk.

2012: Gordon conference (Holderness, USA): plenary talk; Higgs-Maxwell meeting (Edinburgh): plenary talk; SEARCH workshop (Johns Hopkins U., USA): invited participant; Flavor physics (Capri, Italy): invited talk.

2011: PLHC (Perugia, Italy): plenary talk; PHYSTAT (CERN, Geneva): plenary talk; SM@LHC (Durham, UK): plenary talk.

2010: DIS (Florence): plenary talk in opening session; ICHEP (Paris): invited minireview in parallel session; GLASMA workshop (Bookhaven, USA): plenary talk; Cracow school (Zakopane, Poland): invited lectures on QCD; CTEQ-MCNET school (Lauterbad, Germany): invited lectures.

In my capacity as a member of the steering committee of the future LHeC collider; as a PDF contact (since 2010) and subgroup convenor (since 2014) of the CERN Higgs Cross Section Working Group; and as a member of the Steering Committee of the PDF4LHC workshop, I have been regularly convening meetings and giving plenary and summary presentations at the corresponding workshop meetings:

lhec.web.cern.ch/workshops (LHeC);

<https://twiki.cern.ch/twiki/bin/view/LHCPhysics/LHCHXSWG> (Higgs WG);

<https://www.hep.ucl.ac.uk/pdf4lhc/meetings.shtml> (PDF4LHC).

Teaching and contributions to early career of excellent researchers

Since my inception as a full professor in Milan in 2003, I have been regularly teaching at the undergraduate and graduate level, also as a guest lecturer at École Normale Supérieure de Lyon (France) and educating a very large number of excellent researchers.

For several of these I have acted as a Masters' or PhD thesis adviser. These include in particular: Juan Rojo (PhD, assistant professor an VU Amsterdam, starting ERC grant recipient); Fabrizio Caola (PhD, lecturer at Durham U., recipient of the Altarelli award); Stefano Carrazza (PhD, postdoc at CERN); Emanuele Nocera (PhD, postdoc at Oxford U); Giovanni Diana (PhD, postdoc at King's college, London); Elisa Mariani (PhD, postdoc at NIKHEF, Amsterdam); Marco Bonvini (PhD, postdoc at Oxford U); Simone Marzani (Masters, assistant professor at SUNY Buffalo, USA); Maria Ubiali (Masters, Royal Society Hodgkin Fellow at Cambridge U, UK); Marco Zaro (Masters, Marie Curie fellow at Université Pierre et Marie Curie, Paris); Claudia Frugiuele (Masters, postdoc at the Weizmann Institute, Tel Aviv); Tiziano Peraro (Masters, postdoc at Edinburgh U); Margherita Ghezzi (Masters, postdoc at the Paul Scherrer Institut, Switzerland); Paola Ferrario (Masters, postdoc at U. Valencia, Spain); many others are still pursuing PhD studies or have left research (some after distinguished careers, such as Pietro Falgari, formerly at Aachen, Durham and Utrecht). While many are active in theoretical high-energy physics, and several (Rojo, Caola, Ubiali, Marzani, Carrazza, Bonvini, Nocera) still collaborate with me, others succesfully pursue research careers in fields ranging from biophysics (Diana) to experimental neutrino physics (Ferrario).

Professional references

Prof. Nigel Glover, Durham University, UK

Prof. Giampiero Passarino, Università di Torino, Italy

Dr. Albert de Roeck, CERN, Geneva, Switzerland