

Curriculum Vitae – Vittorio Del Duca

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My research deals with the computation and properties of scattering amplitudes, in particular applied to the evaluation of Higgs and jet production rates at LHC and future colliders, and to the computation of gravitational wave emission in binary systems of compact objects.

As of May 2024, I am the author of 92 research papers, 51 conference proceedings and 3 reviews. My work gathered a total of 6146 citations (excluding self-citation) and leads to an h-index of 41 (excluding self-citation). A full list including bibliometric information may be found in the INSPIRE database.

Current Positions

2006– Senior Researcher, INFN, Laboratori Nazionali di Frascati, Italy
2012– Associate Member, Higgs Centre for Theoretical Physics, Edinburgh, UK

Previous Positions

2021–2023 Visiting Researcher, Physik-Institut, University of Zürich, Switzerland
2015–2021 Visiting Researcher, Institute for Theoretical Physics, ETH Zürich, Switzerland
2010 Visiting Researcher, CERN
2003 Visiting Researcher, CERN
1999–2000 Visiting Researcher, CERN
1997–2006 Researcher, INFN, Italy
1996–1998 Lecturer, University of Edinburgh, UK
1993–1995 Postdoctoral Researcher, Deutsches Elektronen-Synchrotron (DESY), Germany
1990–1993 Postdoctoral Researcher, Stanford Linear Accelerator Center (SLAC), USA

Education

1990 Ph.D. in Physics, State University of New York at Stony Brook, USA
1985 Laurea in Fisica, "magna cum laude", University of Torino, Italy

Funding

2017–2021 COST Action CA16201 *PARTICLEFACE*, Short Term Scientific Mission coordinator and Management Committee member
2011–2014 7th Framework Programme of the European Commission, Initial Training Network *LHCPhenoNet*, scientist-in-charge of INFN team (508 KEuro to INFN)

Recent invited conference talks

Over 100 invited talks and presentations at conferences and workshops (a comprehensive list may be found in the webpage), including:

2022 *19th Workshop of the LHC Higgs Working Group*, CERN
2022 *High Precision for Hard Processes (HP2)*, Newcastle, UK
2022 *Flowing into the Future: Particle Jets in Quantum Field Theory and Phenomenology*, Simons Center, Stony Brook, USA
2018 *Amplitudes 2018*, SLAC, Stanford, USA
2018 *QCD@Work, International Workshop on QCD*, Matera, Italy
2018 *New Frontiers in Theoretical Physics*, Cortona, Italy

Supervision of students and junior researchers

Postdoc's: N. Kidonakis, F. Maltoni, G. Bevilacqua, F. Moriello
PhD students: A. Frizzo, C. Duhr, F. Moriello, H. Frellesving, O. Gurdogan, O. Almelid, S. Lionetti, G. Salvatori, R. Haindl
MSc students: F. Moriello, R. Haindl, M. Canay, K. Leyde, C. Rouat, Q. Zizang, C.S. Sasank, D. Barcaro, A. De Simone

Organisation of scientific events

2011–2023 *School of Analytic Computing in High-Energy and Gravitational Theoretical Physics*, Atrani, Italy
2022 *From Scattering Amplitudes to Gravitational-Wave Predictions for Compact Binaries*, ICS Zürich, Switzerland
2019 *Towards accuracy at small x* , Higgs Centre, Edinburgh
2019 *Amplitudes 2019*, Dublin
2018 *Amplitudes in the LHC era*, Galileo Galilei Institute, Firenze
2018 *Subtracting Infrared Singularities beyond NLO*, Higgs Centre, Edinburgh
2017 *Elliptic integrals in math and physics*, ETH Zürich
2017 *Iterated Integrals and the Regge Limit*, Higgs Centre, Edinburgh
2017 *The elliptic/missing Feynman integrals*, ETH Zürich
2012 Mid-Term Meeting of *LHCPhenoNet*, Ravello, Italy
2007 *Advancing Collider Physics: from Twistors to Monte Carlos*, Galileo Galilei Institute, Firenze
2006–2008 *Monte Carlo, Physics and Simulations at LHC*, LNF Frascati, Italy
2004–2010 *Physics of LHC*, Lecce, Italy
2000 *Standard Model Physics at the LHC*, CERN
1998 CERN European School, St. Andrews, Scotland

Reviewing activities

Reviewer for funding applications to the agencies:

European Research Council, American Physical Society, Fonds Recherche Scientifique – FNRS (Belgium), Israel Science Foundation, Ministero Istruzione Università Ricerca (Italy), Particle Physics Astronomy Research Council (UK), Royal Society (UK)

Reviewer for peer-reviewed journals:

European Physics Journal C, Journal of High Energy Physics, Nuclear Physics B, Physics Letters B, Physical Review D, Physical Review Letters

Reviewer for faculty positions:

IPPP Durham, University of Edinburgh

External examiner:

EPFL Lausanne, University of Edinburgh, Université Catholique de Louvain

Committee activities

2009–2014 Italian delegate to the European Committee for Future Accelerators (ECFA)
2005–2008 Theory member of INFN National Scientific Committee for high-energy experiments
2005 PI of the proposal *QCD@LHC* for an EC Research Training Network
2003 PI of the proposal *HardQCD@LHC* for an EC Research Training Network
1999 - 2000 Member of UK PPARC Panel charged to evaluate bids to establish IPPP

Teaching activities

2024 Training course on *A NLO subtraction method for QCD cross sections*, ETH Zürich
2024 Lecture course on *Scattering Amplitudes*, University of Roma Tor Vergata
2020–2022 Lecture course on *Scattering Amplitudes*, ETH Zürich

- 2019–2020 Lecture course on *Introduction to Quantum Chromodynamics*, ETH Zürich
- 2017 Training course on *A (N)NLO subtraction method for QCD cross sections*, ETH Zürich
- 2017 Training course on *The BFKL Equation and the Multi-Regge Kinematics in QCD and in N=4 SYM*, ETH Zürich
- 2016 Training course on *An Introduction to the Perturbative Pomeron and to the BFKL Equation in QCD and in N=4 SYM*, ETH Zürich
- 2015 Lecture course on *Classical Mechanics*, ETH Zürich
- 2009–2011 Lecture course on *QCD at the LHC*, University of Roma Tre
- 2008 Lecture course on *QCD in the LHC era*, University of Salerno
- 1999–2003 Lecture course on *Parton Model and QCD*, University of Torino
- 1999 Lecture course on *Parton model and QCD*, Weizmann Institute
- 1998 Training course on *Renormalisation*, Universities of Edinburgh and Torino
- 1997 Lecture course on *A Path to QCD*, University of Edinburgh
- 1996–1997 Lecture course on *Quantum Physics*, University of Edinburgh
- 1996 Training course on *The perturbative QCD pomeron*, Michigan State University
- 1995 Training course on *The perturbative QCD pomeron*, DESY
- 1994 Training course on *The BFKL equation*, University of Torino

Outreach

- 2011–2015 Lectures on *The Large Hadron Collider and the Standard Model of particles*, for high-school students and teachers, LNF
- 2008 Articles on the Italian newspaper *La Stampa*, on the start of LHC at CERN
- 2008 An interview with P. Higgs, ”www.lnf.infn.it/theory/delduca/higgsinterview.pdf”, in the INFN journal *Asimmetrie* and in the Italian edition of *Scientific American*