

Curriculum Vitae

Personal Information:

Name: Simone ALIOLI

Date of Birth: 22 November 1981

Place of Birth: Varese (Italy)

Nationality: Italian

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■ Current position:

Mar. 2018 - present Associate Professor at the Department of Physics “G. Occhialini”, University of Milano-Bicocca, Italy

■ Previous positions:

Nov. 2017 - Feb. 2018 Research Fellow at the Department of Physics “G. Occhialini”, University of Milano-Bicocca, Italy.

Nov. 2014 - Oct. 2017 COFUND Theory Fellow at CERN, Geneva, Switzerland.

Nov. 2011 - Oct. 2014 PostDoctoral Research assistant at the Ernest Orlando Lawrence National Laboratory and at the University of California at Berkeley, Berkeley, CA, U.S.A.

Nov. 2009 - Oct. 2011 PostDoctoral Research assistant at DESY, Zeuthen, Germany.

Nov. 2006 - Nov. 2009 PhD student at the Department of Physics “G. Occhialini”, University of Milano-Bicocca, Italy.

■ Grants and Awards:

Jun 2020: 5-year MIUR grant FARE for project “P4: Precise Predictions for Particle Phenomenology” (240.000 EUR)

Feb 2018: 5-year Fondazione CARIPLO/Regione Lombardia grant for project “Improved simulations for the LHC and future colliders” (500.000 EUR)

Nov 2017: 5-year ERC Starting Grant 2016 for project ”REINVENT” (1.500.000 EUR)

Nov 2014: 3-year CERN COFUND Fellowship

Dec 2010: DESY monetary prize for the development of the “POWHEG-BOX”

■ Education:

2009 PhD in Physics and Astronomy, subject Theoretical Physics
Università degli Studi di Milano-Bicocca, Milan, Italy.

Advisor: Paolo Nason Date of defense: 24/11/2009

Thesis Title: *Matching Next-to-Leading-Order QCD Calculations with Shower Monte Carlo Simulations: Single Vector Boson and Higgs Boson Productions in POWHEG*

2006 Master Degree in Theoretical Physics, Università degli Studi di Milano-Bicocca, Milan, Italy.

2003 Bachelor Degree in Theoretical Physics, Università degli Studi di Milano-Bicocca, Milan, Italy.

■ Teaching experience:

2018-2021 “Quantum mechanics” course at Milan-Bicocca University (120 hours/year)

2018 PhD course on “Precision Physics at the LHC” at Milan-Bicocca University (20 hours)

2016 Supervisor of CERN summer student L. Gellersen (Project: Tuning Geneva+Pythia8 to LHC data with Professor2)

2015 Tutor at the European School of High-Energy Physics, Bansko, Bulgaria (15 hours)

2015 Tutor at the CERN-FNAL HCP Summer School, CERN, Geneva, Switzerland (6 hours)

2010 “LHC Theory” lectures for DESY summer students (4 hours)

2008-2009 “Quantum mechanics” course assistant at Milan-Bicocca University (30 hours/year)

2008-2009 “Experimental Physics I” course assistant at Milan-Bicocca University (60 hours/year)

■ Organisation of scientific meetings:

- Convener at the CTEQ Workshop on “QCD Tools for LHC Physics: From 8 to 14 TeV: What’s needed and why”, Fermilab, USA, November 14-15, 2013
- Convener of the QCD session at the LHCP 2016, Lund, Sweden, June 13-18, 2016
- Convener of the “Monte Carlo event generator and resummation” session at QCD@LHC 2017, Debrecen, Aug 27 - Sep 1, 2017
- Convener of the “Top and Heavy Flavour” session at SM@LHC 2018, Berlin, Germany, Apr 10-13, 2018
- Convener of the QCD session at LHCP 2018, Bologna, Italy, Jun 4-9 2018

■ Institutional responsibilities and community work:

2018-2020 Organizer of Joint INFN, Milan-Bicocca and Milan University Pheno Seminars, Milan.

2016-2017 Organizer of Collider Cross Talks at CERN.

2013-2014 Organizer of Particle Theory Seminar at LBNL-UC Berkeley.

2010 Organizer of Theory Seminar at DESY-Zeuthen.

Since 2015 Referee for EPJ-C.

Since 2016 Referee for JHEP.

■ Selected Seminars and Colloquia:

- Seminar at SISSA, Trieste, Italy, 7 Mar, 2018
- Plenary talk at “Pushing the Frontiers of Particle Physics During the LHC Run II Era“ conference, HKUST, Honk Kong, 25 Jun 2017
- Talk at ATLAS-CMS Monte Carlo Generators Workshop, CERN, Geneva, Switzerland, 2 May, 2017
- Seminar at Vienna University, Vienna, Austria, 25 Apr, 2017
- Talk at Parton Shower, Event Generators and Resummation workshop, Cambridge, UK, 28 Mar, 2017
- NIKHEF Theory Seminar , Amsterdam, The Netherlands, 16 February, 2017
- Talk at Resummation, Evolution and Factorization Workshop , Antwerpen, Belgium, 9 November, 2016
- Talk at Future challenges for precision QCD Workshop, IPPP, Durham, UK, 26 October 2016
- Theory Seminar at Aspen Center for Physics, Aspen, 22 Aug 2016
- Theory Seminar at ESI workshop, Vienna, 10 Jul 2016
- Theory Seminar at TUM, Munich, 19 May 2016
- HEP Cavendish Seminar at Cambridge University, Cambridge, 10 Nov. 2015
- Particle and Astro-Particle Physics Seminar at UZH, Zürich, 30 Sep. 2015
- Particle and Astro-Particle Physics Seminars at CERN, Geneva, 22 May 2015
- Theory Seminar at Max Planck Institut fur Physik, München, 11 May 2015

■ Selected publications:

1. “*NLO Higgs boson production via gluon fusion matched with shower in POWHEG*”, S. Alioli, P. Nason, C. Oleari and E. Re., JHEP **0904**, 002 (2009)
2. “*NLO single-top production matched with shower in POWHEG: s- and t-channel contributions*”, S. Alioli, P. Nason, C. Oleari and E. Re., JHEP **0909**, 111 (2009), JHEP **1002**, 011 (2010)]
3. “*Jet pair production in POWHEG*” S. Alioli, K. Hamilton, P. Nason, C. Oleari and E. Re, JHEP **1104** 081 (2011)
4. “*A general framework for implementing NLO calculations in shower Monte Carlo programs: the POWHEG BOX*”, S. Alioli, P. Nason, C. Oleari and E. Re., JHEP **1006**, 043 (2010)
5. “*Hadronic top-quark pair-production with one jet and parton showering*” S. Alioli, S. O. Moch and P. Uwer, JHEP **1201**, 137 (2012)
6. “*A new observable to measure the top-quark mass at hadron colliders*”, S. Alioli, P. Fernandez, J. Fuster, A. Irls, S. O. Moch, P. Uwer and M. Vos, Eur. Phys. J. C **73**, 2438 (2013)

7. “*Matching Fully Differential NNLO Calculations and Parton Showers*”, S. Alioli, C. W. Bauer, C. Berggren, F. J. Tackmann, J. R. Walsh and S. Zuberi, JHEP **1406** 089 (2014)
8. “*Drell-Yan production at NNLL'+NNLO matched to parton showers*”, S. Alioli, C. W. Bauer, C. Berggren, F. J. Tackmann and J. R. Walsh., Phys. Rev. D **92**, no. 9, 094020 (2015)
9. “*Precision Probes of QCD at High Energies*” S. Alioli, M. Farina, D. Pappadopulo and J. T. Ruderman, JHEP **1707** 097 (2017)
10. “*Catching a New Force by the Tail*”, S. Alioli, M. Farina, D. Pappadopulo and J. T. Ruderman, Phys. Rev. Lett. **120** (2018)
11. “*NLO QCD corrections to SM-EFT dilepton and electroweak Higgs boson production, matched to parton shower in POWHEG*”, S. Alioli, W. Dekens, M. Girard and E. Mereghetti, JHEP **08**, 205 (2018)
12. “*Higgsstrahlung at NNLL'+NNLO matched to parton showers in GENEVA*”, S. Alioli, A. Broggio, S. Kallweit, M. A. Lim and L. Rottoli, Phys. Rev. D **100**, no.9, 096016 (2019)
13. “*Novel angular dependence in Drell-Yan lepton production via dimension-8 operators*”, S. Alioli, R. Boughezal, E. Mereghetti and F. Petriello, Phys. Lett. B **809**, 135703 (2020)

■ **Research visits:**

- Aspen Center For Physics, Aspen, Colorado, U.S.A. during the program “The LHC Awakens: A New Energy Frontier”, 14 Aug.- 4 Sep., 2016
- ESI, Vienna, Austria, during the program “Challenges and Concepts for Field Theory and Applications in the Era of LHC Run-2”, 18-29 July, 2016
- MITP, Mainz, Germany, during the program “Higher Order and Jets for LHC”, 5-18 July, 2015
- Aspen Center For Physics, Aspen, Colorado, U.S.A. during the program “Frontiers in Particle Physics: From Dark Matter to the LHC and Beyond”, 18-24 January, 2014
- MITP, Mainz, Germany, 1-20 September 2013
- “TH/LPCC Institute on SM at the LHC”, CERN, Switzerland, 1 - 12 Oct. 2012
- “TEV2011: Physics at TeV Colliders”, Les Houches, France 30 May - 8 June 2011
- Galileo Galilei Institute, Firenze, Italy, during the program “Advancing Collider Physics: from Twistors to Monte Carlo”, 24-28 September 2007

■ **Selected invitations to international conferences:**

1. “*Merging NNLO calculations with higher-order resummation and parton showers in GENEVA* “, LoopFest XVIII, Fermilab, USA, 12 Aug. 2019
2. “*Underlying Event sensitive observables with Monte Carlo*”, ESI 2016, Erwin-Schroedinger Institute, Vienna, 19 Jul. 2016
3. “*Drell-Yan production at NNLL'+NNLO matched to parton showers in GENEVA*”, SCET 2016, DESY, Hamburg, 23 Mar. 2016
4. “*Status and Perspectives of NNLO plus Parton Shower Matching*”, DIS 2016, DESY, Hamburg, 13 Apr. 2016
5. “*Matching NNLO calculations with parton showers in GENEVA*”, PSR workshop, Krakow, Poland, 27 May 2015
6. “*GENEVA Monte Carlo: status and new developments*”, LoopFest XIII, New York Citi College, 20 Jun. 2014
7. “*Matching NNLO Calculations and Parton Showers*”, Frontiers in Particle Physics: From Dark Matter to the LHC and Beyond, Aspen, 20 Jan. 2014
8. “*Top quark physics*”, plenary QCD@LHC 2013, Hamburg, 3 Sep. 2013
9. “*Matching NLO Calculations and Parton Showers*”, Santa Cruz, 16 Aug. 2013
10. “*A new observable to determine the top-quark mass at hadron colliders*”, Snowmass Workshop, Seattle, 30 Jun. 2013
11. “*Combining Higher-Order Resummation with Multiple NLO Calculations and Parton Showers in the GENEVA Monte Carlo Framework*”, Rencontres de Moriond, La Thuile, 14 Mar. 2013
12. “*Matching NLO QCD to Monte Carlo showers and POWHEG*”, Loops & Legs 2012, Wernigerode, 19 Apr. 2012
13. “*POWHEG: status and perspectives*” Europhysics Conference on High-Energy Physics 2011, Grenoble, 21 Jul. 2011

February 7, 2021

Simone Alioli