



GIOVANNI

STAGNITTO

Curriculum vitae

Updated on February 21, 2025

Current position: Fixed-term assistant professor (RTDa)

Institution: Università degli Studi di Milano Bicocca

Office address: Piazza della Scienza 3, 20126 Milano

Nationality: Italian

Birth date: September 26, 1993

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INSPIRE: <https://inspirehep.net/literature?q=a%20Giovanni.Stagnitto.1>

Current position

✳ 10/2023 - present: Fixed-term assistant professor (RTDa)
Università degli Studi di Milano Bicocca

✳ 10/2023 - present: Visiting Scientist
CERN Theoretical Physics Department

Previous positions

✳ 10/2020 - 09/2023: Postdoctoral researcher
University of Zurich, Group of Prof. Thomas Gehrmann

Education

✳ 10/2017 - 09/2020: PhD, Particle Physics Phenomenology
Université de Paris and Università degli Studi di Milano
Supervisors: Matteo Cacciari, Stefano Forte, Gregory Soyez

✳ 10/2015 - 07/2017: Master's Degree, Theoretical Physics
Università degli Studi di Pavia, Italy. Highest honours.
Advisors: Daniela Rebutti, Matteo Cacciari
Winner of a merit-based scholarship from the historical Collegio Fratelli Cairoli in Pavia.

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- ✳ 03/2017 - 07/2017: Erasmus+ Traineeship
Laboratoire de Physique Théorique et Hautes Energies, Paris
 - ✳ 06/2016 - 09/2016: Short-Term Internship
CERN, ATLAS Experiment, Data acquisition group
 - ✳ 10/2012 - 09/2015: Bachelor's Degree, Physics
Università degli Studi di Pavia, Italy. Highest honours.
Advisors: Daniela Rebutti, Andrea Negri, Matteo Cacciari.
 - ✳ 09/2007 - 07/2012: High School, Scientific Concentration
Liceo Taramelli, Pavia, Italy. Highest honours.

Fellowships and Awards

- ✳ Winner of a Marie Skłodowska-Curie Postdoctoral Fellowships grant ($\sim 172k$ €)
University of Genova, 01/09/2025 - 31/08/2027
HIPFLAPP: High Precision Flavoured Particle Production at the Large Hadron Collider
<https://cordis.europa.eu/project/id/101149076>
- ✳ PRL Editors' Suggestion for Phys.Rev.Lett. 132 (2024) 25 (*Semi-Inclusive Deep-Inelastic Scattering at Next-to-Next-to-Leading Order in QCD*)
- ✳ EPJC cover for Eur.Phys.J.C 83 (2023) 336 (*NNLO QCD predictions for Z-boson production in association with a charm jet within the LHCb fiducial region*)
- ✳ Co-recipient of a ETH/UZH Pauli Center Short-term visit grant in October 2024 ($\sim 2.5k$ €)

Teaching activities

- ✳ 10/2023 - present: Assistant professor, Laboratory of Computation and Statistics
Università degli Studi di Milano Bicocca, Italy
- ✳ 29/07/2024: Theory lecture on jet substructure at BOOSTcamp (2h)
BOOST Workshop, Genova, Italy
- ✳ 06/09/2023 - 19/09/2023: Discussion leader at the CERN European School of HEP
Grenaa, Denmark
- ✳ 09/2022 - 02/2023: Teaching assistant in Thermodynamics
Physik-Institut, University of Zurich, Switzerland
- ✳ 02/2022 - 07/2022: Supervision of proseminars in Theoretical Particle Physics
Physik-Institut, University of Zurich, Switzerland
- ✳ 17/03/2021 - 18/03/2021: Lectures on QCD for PhD students in HEP (4h)
Graduate School in Physics, Università degli Studi di Pavia, Italy
- ✳ 02/2021 - 07/2021: Teaching assistant in Electrodynamics
Physik-Institut, University of Zurich, Switzerland
- ✳ 10/2018 - 12/2019: Teaching assistant in Biophysics (in French)
Faculty of Pharmacy, Université Paris Descartes, France
- ✳ 10/2017 - 07/2018: Teaching assistant in Quantum Mechanics
Department of Physics, Università degli Studi di Milano, Italy
- ✳ 10/2015 - 07/2017: University Tutor: Statistics, Analysis
Faculty of Economics, Università degli Studi di Pavia, Italy

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- ✳ 10/2015 - 07/2017: University Tutor: Mechanics, Electromagnetism, Analysis
Faculty of Engineering, Università degli Studi di Pavia, Italy

Supervision of students

- ✳ 01/2025 - present: Co-supervision of a Master student (D. Dal Fiume)
Università degli Studi di Pavia, Italy
- ✳ 09/2021 - 12/2021: Co-supervision of a Bachelor student (F. Ucci)
Thesis: “*Diving into jets*”
Università degli Studi di Pavia, Italy
- ✳ 02/2021 - 09/2021: Co-supervision of a Master student (A. Rescia)
Thesis: “*Color sensitive variables for Higgs boson studies*”
Università degli Studi di Pavia, Italy (with a traineeship of three months at the Physik-Institut, University of Zurich, Switzerland)

Organisation of scientific meetings

- ✳ 17/03/2025 - 19/03/2025: Co-organiser of “Fragmentation in the collider precision era” workshop
(40-50 participants, Zurich, Switzerland)
- ✳ 04/03/2024 - 06/03/2025: Organiser of the “NNLOJET” collaboration meeting (30 participants, Milano Bicocca University, Italy)

Coordination duties

- ✳ 09/04/2025 - 11/04/2025: Co-convener of the “Frontiera Energia” session
Incontri di Fisica delle Alte Energie (Cagliari, Italy)
- ✳ 02/2024 - present: Co-organiser of the Joint INFN-UNIMI-UNIMIB Pheno Seminars
Università degli Studi di Milano, Milano Bicocca and INFN
- ✳ 22/01/2025 - 24/01/2025: Co-convener of the “Theory tools for event simulations” session
Workshop on FCC-ee and Lepton Colliders (INFN LNF, Frascati, Italy)
- ✳ 29/07/2024 - 02/08/2024: Chair of Heavy Flavour session
16th International Workshop on Boosted Object Phenomenology (Genova, Italy)
- ✳ 08/04/2024 - 12/04/2024:
Co-convener of the “QCD with Heavy Flavours and Hadronic Final States” Working Group
31st International Workshop on Deep Inelastic Scattering (Grenoble, France)
- ✳ 15/08/2022 - 19/08/2022: Chair of QCD session
14th International Workshop on Boosted Object Phenomenology (Hamburg, Germany)
- ✳ 09/2021 - 12/2021: Co-organiser of the seminars in Theoretical Particle Physics
University of Zurich and ETH Zurich

Publication list (both preprints and published papers)

- [1] R. Aliberti et al., *Radiative corrections and Monte Carlo tools for low-energy hadronic cross sections in e^+e^- collisions*, [2410.22882](#).
- [2] L. Bonino, T. Gehrmann, M. Löchner, K. Schönwald and G. Stagnitto, *Polarized Semi-Inclusive Deep-Inelastic Scattering at Next-to-Next-to-Leading Order in QCD*, *Phys. Rev. Lett.* **133** (2024) 211904 [[2404.08597](#)].

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- [3] L. Bonino, T. Gehrmann, M. Marcoli, R. Schürmann and G. Stagnitto, *Antenna subtraction for processes with identified particles at hadron colliders*, *JHEP* **08** (2024) 073 [[2406.09925](#)].
 - [4] S. Caletti, A. Gehrmann-De Ridder, A. Huss, A. R. Garcia and G. Stagnitto, *QCD predictions for vector boson plus hadron production at the LHC*, *JHEP* **10** (2024) 027 [[2405.17540](#)].
 - [5] L. Bonino, T. Gehrmann and G. Stagnitto, *Semi-Inclusive Deep-Inelastic Scattering at Next-to-Next-to-Leading Order in QCD*, *Phys. Rev. Lett.* **132** (2024) 251901 [[2401.16281](#)].
 - [6] L. Bonino, M. Cacciari and G. Stagnitto, *Heavy quark fragmentation in e^+e^- collisions to NNLO+NNLL accuracy in perturbative QCD*, *JHEP* **06** (2024) 040 [[2312.12519](#)].
 - [7] A. Gehrmann-De Ridder, T. Gehrmann, E. W. N. Glover, A. Huss, A. R. Garcia and G. Stagnitto, *Precise QCD predictions for W-boson production in association with a charm jet*, *Eur. Phys. J. C* **84** (2024) 361 [[2311.14991](#)].
 - [8] X. Chen, P. Jakubčík, M. Marcoli and G. Stagnitto, *Radiation from a gluon-gluino colour-singlet dipole at N^3LO* , *JHEP* **12** (2023) 198 [[2310.13062](#)].
 - [9] S. Frixione and G. Stagnitto, *The muon parton distribution functions*, *JHEP* **12** (2023) 170 [[2309.07516](#)].
 - [10] X. Chen, P. Jakubčík, M. Marcoli and G. Stagnitto, *The parton-level structure of Higgs decays to hadrons at N^3LO* , *JHEP* **06** (2023) 185 [[2304.11180](#)].
 - [11] R. Gauld, A. Gehrmann-De Ridder, E. W. N. Glover, A. Huss, A. R. Garcia and G. Stagnitto, *NNLO QCD predictions for Z-boson production in association with a charm jet within the LHCb fiducial region*, *Eur. Phys. J. C* **83** (2023) 336 [[2302.12844](#)].
 - [12] P. Jakubčík, M. Marcoli and G. Stagnitto, *The parton-level structure of e^+e^- to 2 jets at N^3LO* , *JHEP* **01** (2023) 168 [[2211.08446](#)].
 - [13] R. Gauld, A. Huss and G. Stagnitto, *Flavor Identification of Reconstructed Hadronic Jets*, *Phys. Rev. Lett.* **130** (2023) 161901 [[2208.11138](#)], [Erratum: Phys.Rev.Lett. 132, 159901 (2024)].
 - [14] T. Gehrmann and G. Stagnitto, *Antenna subtraction at NNLO with identified hadrons*, *JHEP* **10** (2022) 136 [[2208.02650](#)].
 - [15] V. Bertone, M. Cacciari, S. Frixione, G. Stagnitto, M. Zaro and X. Zhao, *Improving methods and predictions at high-energy e^+e^- colliders within collinear factorisation*, *JHEP* **10** (2022) 089 [[2207.03265](#)].
 - [16] J. M. Campbell et al., *Event generators for high-energy physics experiments*, *SciPost Phys.* **16** (2024) 130 [[2203.11110](#)].
 - [17] L. Cavallini, A. Coccaro, C. K. Khosa, G. Manco, S. Marzani, F. Parodi, D. Rebutti et al., *Tagging the Higgs boson decay to bottom quarks with colour-sensitive observables and the Lund jet plane*, *Eur. Phys. J. C* **82** (2022) 493 [[2112.09650](#)].
 - [18] G. Kasieczka, S. Marzani, G. Soyez and G. Stagnitto, *Towards Machine Learning Analytics for Jet Substructure*, *JHEP* **09** (2020) 195 [[2007.04319](#)].
 - [19] R. Abdul Khalek et al., *Phenomenology of NNLO jet production at the LHC and its impact on parton distributions*, *Eur. Phys. J. C* **80** (2020) 797 [[2005.11327](#)].
 - [20] V. Bertone, M. Cacciari, S. Frixione and G. Stagnitto, *The partonic structure of the electron at the next-to-leading logarithmic accuracy in QED*, *JHEP* **03** (2020) 135 [[1911.12040](#)], [Erratum: JHEP 08, 108 (2022)].
 - [21] M. Cacciari, S. Forte, D. Napoletano, G. Soyez and G. Stagnitto, *Single-jet inclusive cross section and its definition*, *Phys. Rev. D* **100** (2019) 114015 [[1906.11850](#)].

Talks at conferences and workshops

1. *Jets and their substructure at electron-proton colliders* (invited; plenary)
Next Generation Perturbative QCD for Hadron Structure (workshop)
Mainz (Germany); 21/10/2024; <https://indico.mitp.uni-mainz.de/event/370>
2. *Semi-inclusive deep-inelastic scattering at NNLO in QCD* (invited; plenary)
Next Generation Perturbative QCD for Hadron Structure (workshop)
Mainz (Germany); 22/10/2024; <https://indico.mitp.uni-mainz.de/event/370>
3. *Flavour-sensitive jet algorithms* (invited; plenary)
QCD@LHC24 (conference)
Freiburg (Germany); 09/10/2024; <https://indico.cern.ch/event/1360294>
4. *Heavy quark fragmentation* (invited; plenary)
12th Lepton and Future Colliders Workshop
SISSA, Trieste (Italy); 18/09/2024; <https://agenda.infn.it/event/41113>
5. *Heavy quark fragmentation* (invited; plenary)
Frontiers in precision phenomenology: Resummation, Amplitudes, and Subtraction (workshop)
CERN, Geneva (Switzerland); 15/08/2024; <https://indico.cern.ch/event/1354833>
6. *BOOST camp (theory)* (invited; plenary)
16th International Workshop on Boosted Object Phenomenology (BOOST 2024)
Genova (Italy); 29/07/2024; <https://agenda.infn.it/event/37093>
7. *Les Houches flavour studies* (invited; plenary)
Flavoured Jets at the LHC (workshop)
IPPP, Durham (UK); 11/06/2024; <https://conference.ippp.dur.ac.uk/event/1301>
8. *Semi-inclusive deep-inelastic scattering at NNLO in QCD* (invited; plenary)
QCD Evolution (workshop)
Pavia (Italy); 27/05/2024; <https://agenda.infn.it/event/38747>
9. *Precise predictions for V + jet production* (invited; plenary)
Standard Model at the LHC (workshop)
Roma (Italy); 09/05/2024; <https://indico.cern.ch/event/1346940>
10. *Summary of Working Group 4* (invited; plenary)
31st International Workshop on Deep Inelastic Scattering and Related Subjects (DIS2024)
Grenoble (France); 12/04/2024; <https://lpsc-indico.in2p3.fr/event/3268>
11. *MadGraph5_aMC@NLO for e^+e^- collisions* (invited)
7th FCC Physics Workshop
LAPP, Annecy (France); 30/01/2024; <https://indico.cern.ch/event/1307378>
12. *Flavoured jets at the LHC* (invited; plenary)
Theory Challenges in the Precision Era of the Large Hadron Collider (conference)
GGI, Firenze (Italy); 30/08/2023; <https://www.ggi.infn.it/showevent.pl?id=448>
13. *Collinear factorisation for future e^+e^- colliders* (invited; plenary)
Parton Showers and Resummation (workshop)
Milano (Italy); 08/06/2023; <https://indico.cern.ch/event/1202436>
14. *Flavoured jets at the LHC* (invited)
11th Large Hadron Collider Physics Conference
Belgrade (Serbia); 22/05/2022; <https://indico.cern.ch/event/1198609>

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15. *Jets and their substructure* (invited)
11th Large Hadron Collider Physics Conference
Belgrade (Serbia); 22/05/2022; <https://indico.cern.ch/event/1198609>
 16. *QED corrections at lepton colliders: collinear factorisation vs YFS* (invited; plenary)
Parton Showers for future e^+e^- colliders (workshop)
CERN, Geneva (Switzerland); 28/04/2023; <https://indico.cern.ch/event/1233329>
 17. *A dress of flavour to suit any jet + NNLO QCD Z+c-jet at LHCb* (abstract; plenary)
57th Rencontres de Moriond (conference)
La Thuile (Italy); 30/03/2023; <https://moriond.in2p3.fr/QCD/2023/MorQCD23Prog.html>
 18. *Dressing jets with flavour in an infrared safe way* (abstract)
QCD@LHC22 (conference)
IJCLab, Orsay (France); 02/12/2022; <https://indico.cern.ch/event/1150707>
 19. *Lepton collisions in MadGraph5_aMC@NLO* (invited)
International Workshop on the High Energy Circular Electron Positron Collider
online; 26/10/2022; <https://indico.ihep.ac.cn/event/17020>
 20. *Dressing jets with flavour in an infrared safe way* (invited)
International Workshop on the High Energy Circular Electron Positron Collider
online; 26/10/2022; <https://indico.ihep.ac.cn/event/17020>
 21. *Initial state QED radiation at NLL accuracy for future e^+e^- colliders* (invited; plenary)
LFC22: Strong interactions at LHC and Future Colliders (workshop)
ECT*, Trento (Italy); 30/08/2022; <https://indico.ectstar.eu/event/149>
 22. *PDF for FCC-ee precision* (invited; plenary)
Fostering Swiss collaboration towards a future circular collider (workshop)
Zurich (Switzerland); 26/08/2022; <https://indico.cern.ch/event/1041452>
 23. *A dress of flavour to suit any jet* (abstract; plenary)
14th International Workshop on Boosted Object Phenomenology (BOOST 2022)
Hamburg (Germany); 16/08/2022; <https://indico.cern.ch/event/1144064>
 24. *Initial state QED radiation at NLL accuracy for future e^+e^- colliders* (abstract)
International Conference on High Energy Physics (ICHEP)
Bologna (Italy); 08/07/2022; <https://agenda.infn.it/event/28874>
 25. *Antenna subtraction at NNLO with identified hadrons* (abstract)
Loops and Legs in Quantum Field Theory (workshop)
Ettal (Germany); 29/04/2022; <https://indico.desy.de/event/30267>
 26. *Towards Machine Learning Analytics for Jet Substructure* (poster)
12th International Workshop on Boosted Object Phenomenology (BOOST 2020)
online; 21/07/2020; <https://indico.cern.ch/event/775951>
 27. *The single-jet inclusive cross-section and its definition* (poster)
11th International Workshop on Boosted Object Phenomenology (BOOST 2019)
MIT, Boston (USA); 22/07/2019; <https://indico.cern.ch/event/753914>
 28. *Recurrence relations for scale dependence in QCD* (invited; plenary)
Incontri di Fisica delle Alte Energie (IFAE)
Milano (Italy); 05/04/2018; <https://agenda.infn.it/event/14895>

Seminars

1. *(Un)polarised semi-inclusive deep-inelastic scattering at NNLO in QCD*
LPTHE Particle Physics Seminar; Paris (France); 29/04/2024
2. *(Un)polarised semi-inclusive deep-inelastic scattering at NNLO in QCD*
CERN Theory QCD Seminar; Geneva (Switzerland); 15/04/2024
3. *Fragmentation in the collider precision era*
Max Planck Institute for Physics Pheno Seminar; Munich (Germany); 07/02/2024
4. *Flavoured jets and particles at the LHC* (invited)
Joint Pheno Seminar; Milano (Italy); 16/01/2023
5. *Flavoured jets and particles at the LHC* (invited)
Nikhef Theory Seminar; Amsterdam (Netherlands); 20/10/2022
6. *The partonic structure of the electron at the next-to-leading logarithmic accuracy in QED*
PSI Particle Theory Seminars; online; 21/10/2020

Talks at meetings and informal workshops

1. *Electron PDFs* (invited)
MadGraph5_aMC@NLO meeting 2025
CERN, 04/02/2025; <https://indico.cern.ch/event/1452599>
2. *Standard Model Phenomenology* (invited)
25th anniversary of the Physics Department
Milano Bicocca University (Milano, Italy), 30/09/2024
3. *On definition of flavoured jets* (invited)
LHC EW WG General Meeting
CERN, 10/07/2024 - 12/07/2024
4. *The flavour dressing (aka GHS) algorithm* (invited)
Public LHCb meeting on jet flavor algorithms
online, 20/05/2024
5. *The flavour dressing algorithm* (invited)
Physics at TeV Colliders
Les Houches, France; 12/06/2023 - 12/06/2023
6. *Initial state QED radiation for future lepton colliders*
Milan Christmas Meeting
Università degli Studi di Milano, 21/12/2022 - 23/12/2022
7. *A dress of flavour to suit any jet* (invited)
ATLAS PDF Forum
online, 15/07/2022
8. *The partonic structure of the electron at the NLL accuracy in QED*
Milan Christmas Meeting
Università degli Studi di Milano, 19/12/2019 - 20/12/2019
9. *The partonic structure of the electron at the NLL accuracy in QED* (invited)
Plenary session of GDR QCD
LPT Orsay, France; 25/11/2019 - 27/11/2019

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10. *The single-jet inclusive cross-section* (invited)
NNPDF/N3PDF meeting
Varenna, Italy; 27/08/2019 - 30/08/2019
 11. *The single-jet inclusive cross-section and its definition* (poster)
PhD Student Conference of STEP'UP doctoral school
Institut de Physique du Globe de Paris, France; 25/03/2019 - 29/03/2019
 12. *Issues with the single-jet inclusive cross-section*
First-year doctoral student workshop
Università degli Studi di Milano, Italy; 09/10/2018 - 10/10/2018

Reviewing and editorial activities

- ✧ Referee for Physical Review D, Physics Letters B, European Physical Journal C, Journal of High Energy Physics
- ✧ External referee of A. Candido's PhD thesis *Theory Predictions for PDF fitting* (Università degli Studi di Milano, 2022)

Languages (self-evaluation)

- ✧ Italian: mother-tongue
- ✧ English: C1
- ✧ French: A2/B1
- ✧ German: A1/A2

Computer skills

- ✧ Programming languages: C/C++, Python, Fortran, Mathematica
- ✧ Unix environment, Git, L^AT_EX
- ✧ Web development: HTML, CSS, php, SQL (basic knowledge)

Outreach activities

I am passionate about sharing physics with the general public and in particular making it more accessible to young people. I am a strong supporter of popularization at every level.

Outreach Training While attending the 2023 CERN European School of High-Energy Physics as Discussion Leader, I had the opportunity to attend 3 hours of lectures about outreach techniques, in particular about how to express themselves in both an accessible and energised way and how to be able to employ strategies to achieve impact in talking about research. The training has been delivered by professionals (www.insideedgetraining.co.uk).

Botta di Coulomb I developed the software for a scientific quiz game with the aim of spreading science in an entertaining way. *Botta di Coulomb* is organized into a series of multiple choice questions and each team has a few seconds to answer using a wifi remote controller. The software is responsible for displaying the questions, collecting the answers, and updating the ranking. The code is written in Python and it is publicly available on <https://gitlab.com/gstagnit/bdc>. It has been presented at public events such as the European Researchers' Night 2017, 2018, 2019 and 2021 in Pavia, used as a social activity at the ATLAS Italia workshop 2018 and at other events of the Italian Association of Physics Students.

Introduction to Quantum Mechanics/Particle Physics for high school students I have been invited to the Liceo Golgi in Broni (near Pavia, Italy) for introductory lectures on Quantum Mechanics and modern Particle Physics. April 2022: 14 hours. May 2019: 4 hours. February 2017: 4 hours.

Particle Physics Seminars I organized outreach seminars for the general public at the Collegio Fratelli Cairoli in Pavia. Among the speakers of the previous years: A. Negri, D. Rebutti (2016), S. Forte (2017), O. Nicrosini (2018).

AISF From October 2018 to September 2020, I have been a member of the Executive Committee and IT Manager of the Italian Association of Physics Students ([AISF](#)). AISF is a non-profit organization with educational purposes, which counts more than 1400 members. Within AISF, I was one of the organizers of the 2018 edition of the Biomedical Physics Lombard Event (BiPLE), a one-week event between Pavia and Milano with seminars and visits to facilities (50 participants). I was also an organizer of the 2019 edition of the Italian Conference of Physics Students (CISF), hosted in Milano, AISF's main annual event (150 participants).