

## PERSONAL INFORMATION

### Gianguido Dall'Agata

📍 Dipartimento di Fisica e Astronomia "Galileo Galilei", Università degli Studi di Padova, Via Marzolo, 8, 35131 Padova, Italy

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Nationality Italian

## PROFESSIONAL EXPERIENCE

### February 2016–present Full Professor

(FIS/02: Theoretical Physics and Mathematical Methods), Università degli Studi di Padova, Padova, Italy.

August 2015/September 2015 CNRS Associated Researcher, CPHT, Ecole Polytechnique, Paris, France.

March 2011–January 2016 Professore Associato (FIS/02: Theoretical Physics and Mathematical Methods), Università degli Studi di Padova, Padova, Italy.

Sept. 2009/Jan.–Feb. 2010 CNRS Associated Researcher, LPT, Ecole Normale Supérieure, Paris, France.

October 2006–February 2011 Ricercatore (FIS/02: Theoretical Physics and Mathematical Methods), Università degli Studi di Padova, Padova, Italy.

October 2004–September 2006 CERN Fellowship, CERN, Geneva, Switzerland.

October 2002–September 2004 PostDoctoral Fellowship of the DFG at the Physics Department (Research group of Dieter Lüst) of the von Humboldt University of Berlin, Germany.

October 2000–September 2002 PostDoctoral Fellowship of the EU under RTN contract HPRN-CT-2000-00131 "The quantum structure of spacetime and the geometric nature of fundamental interactions" at the Physics Department (Research group of Dieter Lüst) of the von Humboldt University of Berlin, Germany.

## EDUCATION

October 1997–December 2000 Ph. D. in Physics at the Dipartimento di Fisica Teorica, University of Turin, Italy.

## TEACHING AND ACADEMIA

### Students

Ph.D.

2018/19– [D. Partipilo](#).

2015/16–2017/18 [N. Cribiori](#), then postdoc at TU Wien.

2010/11–2012/13 [G. Inverso](#) (co-advisor with M. Bianchi), then postdoc at NIKHEF, ITP Lisboa and Queen Mary U. London.

2008/09–2010/11 [A. Gnechchi](#), then postdoc at Utrecht U., Leuven U. and CERN.

Some master and Galilean students [C. Toldo](#), postdoc at CEA Saclay, [M. Baggio](#), PostDoc in Leuven, [G. Zoccarato](#), PostDoc at UPenn, [A. de Angelis](#), Ph.D. student at Queen Mary, [L. Casarin](#), Ph.D. student at AEI Potsdam, [P. Spezzati](#) and [M. Gorghetto](#), Ph.D. students at SISSA.

### Academic roles

2016–2018 Coordinator of the Ph.D. Course in Physics (Padova University)

2011–2015 Deputy Coordinator of the Ph.D. School in Physics (Padova University)

2015–today Member of the Physics Department's Directive Board (Padova University)

2011–today Member of the Physics PhD Council of Padova Uni.

## MAIN PRIZES AND GRANTS

SIGRAV Prize 2008 Italian Society of General Relativity and gravitational physics prize to investigators under 35 years of age who gave relevant contributions to gravitational physics.

- 2019-2022 Italian Ministry of Research - Unit leader of the PRIN project “Supersymmetry Breaking with Fields, Strings and Branes” (Units Scuola Normale Superiore, Padova, Milano Statale, Milano Bicocca).
- 2012-2016 Italian Ministry of Research - Principal Investigator of the FIR project “String Theory and Fundamental Interactions” (Units Padova and Milano Bicocca).
- 2011-2013 Padova Uni. - University Project - “de Sitter vacua in supergravity and string theory” (PI).

## COMMISSIONS OF TRUST

- Editorial Boards Associate Editor of [Int. J. of Geometric Methods in Modern Physics](#).
- Grant Refereeing Referee for the EPSRC, for the Swiss National Science Foundation, for the Belgian FWO, for the Netherlands Organisation for Scientific Research and for the Italian Ministry of Research (SIR grants, Rita Levi Montalcini Grants). Referee for the Italian Research and University Evaluation Agency (ANVUR).

## PUBLICATIONS

Detail I published 60 research articles, 13 conference proceedings and a book. To date they received about 4000 inSPIRE citations, 11 papers with more than 100 citations, other 22 with more than 50 citations, for an overall  $h = 38$ . The full list is available at <https://inspirehep.net/search?ln=en&ln=en&p=a+dall%27agata%2Cg>.

10 Most relevant publications

1. A. Ceresole, G. Dall'Agata, R. D'Auria and S. Ferrara, *Spectrum of type IIB supergravity on  $AdS_5 \times T^{11}$ : Predictions on  $N = 1$  SCFT's*, Phys. Rev. D **61**, 066001 (2000) [[hep-th/9905226](#)].
2. A. Ceresole and G. Dall'Agata, *General matter coupled  $N = 2$ ,  $D = 5$  gauged supergravity*, Nucl. Phys. B **585**, 143 (2000) [[hep-th/0004111](#)].
3. G. Dall'Agata, *Type IIB supergravity compactified on a Calabi-Yau manifold with H-fluxes*, JHEP **0111**, 005 (2001), [[hep-th/0107264](#)].
4. G. L. Cardoso, G. Curio, G. Dall'Agata, D. Lüst, P. Manousselis and G. Zoupanos, *Non-Kaehler string backgrounds and their five torsion classes*, Nucl. Phys. B **652**, 5 (2003) [[hep-th/0211118](#)].
5. G. L. Cardoso, G. Curio, G. Dall'Agata and D. Lüst, *BPS action and superpotential for heterotic string compactifications with fluxes*, JHEP **0310** (2003) 004 [[hep-th/0306088](#)].
6. A. Ceresole and G. Dall'Agata, *“Flow equations for non-BPS extremal black holes,”* JHEP **0703** (2007) 110 [[arXiv:hep-th/0702088](#)].
7. G. Dall'Agata and A. Gnechchi, *“Flow equations and attractors for black holes in  $N = 2$   $U(1)$  gauged supergravity,”* JHEP **1103** (2011) 037 [[arXiv:1012.3756](#) [hep-th]].
8. G. Dall'Agata, G. Inverso and M. Trigiante, *“Evidence for a family of  $SO(8)$  gauged supergravity theories,”* Phys. Rev. Lett. **109** (2012) 201301. [[arXiv:1209.0760](#) [hep-th]].
9. G. Dall'Agata, F. Zwirner, *“On sgoldstino-less supergravity models of inflation,”* JHEP **1412** (2014) 172 [[arXiv:1411.2605](#) [hep-th]].
10. G. Dall'Agata, E. Dudas and F. Farakos, *“On the origin of constrained superfields”* JHEP **1605** (2016) 041 [[arXiv:1603.03416](#) [hep-th]].

## *Curriculum Vitae* of **Dr. Maria Colonna**

I authorize the use of my personal data pursuant to Legislative Decree Dlgs 196, June 30, 2003.  
Autorizzo il trattamento dei miei dati personali ai sensi del Dlgs 196 del 30 giugno 2003.

- Born 20<sup>th</sup> July 1966, Siracusa (Italy);
- 28<sup>th</sup> June 1989, graduated (110/110 *summa cum laude*) at the University of Catania;
- 15<sup>th</sup> September 1993, Ph.D degree at the University of Catania;
- 1993, research collaborator (CEA contract) at GANIL (France);
- 1993-1995, Post-doc position with a Marie-Curie fellowship (Human Capital and Mobility – Individual Fellowships), at GANIL (France);
- 1996 CEA contract at Dapnia/SPhN Saclay (France);
- 1997 Return Grant Fellowship of the European Community (TMR Programme) at the LNS theory group, Catania;
- 1998-2008 INFN position as a permanent researcher at the LNS theory group;
- 2009-present, INFN position as First Researcher at the LNS theory group;
- 2014: National Habilitation as a Full University Professor  
(<https://abilitazione.cineca.it/ministero.php/public/esitoAbilitati/settore/02%252FA2/fascia/1>)

### ❖ **Research interests:**

- Theoretical description of heavy ion reactions, from low to relativistic energies
- Effective nuclear interactions
- Nuclear matter Equation of State (EOS)
- Collective motion in nuclei
- Phase transitions in nuclear matter
- Clustering phenomena
- Impact of the nuclear EOS on the properties of compact stars
- Charge exchange nuclear reactions and analogies with (double)  $\beta$  decay

### ❖ **Publications in peer refereed international journals and conference proceedings:**

- 320 publications, among which 2 Physics Reports, 10 Physical Review Letters, 25 Physics Letters B, 68 Physical Review C, 52 Nuclear Physics A;
- more than 6400 citations; h-index:45 (from ISI Web of Knowledge , March 2019) <https://apps.webofknowledge.com>
- More than 50 invited talks at international workshops and conferences.



### ❖ *Scientific responsibilities*

- 2006-2012: Member of the INFN Theory Committee (CSN4);
- 2006-2012: Coordinator of the LNS Theory Group;
- 2011-2012: Referee of the research line “Nuclear and Hadronic Physics” of the INFN Theory Committee;
- Member of the writing committee for the “White Book” of the SPIRAL 2 facility (GANIL), for the section “Nuclear Dynamics and Thermodynamics” (June 2006) (<http://pro.ganil-spiral2.eu/spiral2/what-is-spiral2/physics-case/view>);
- Member of the Review Committee of the LAMPS (Large Acceptance Multi-Purpose Spectrometer) of the project RAON (rare isotope accelerator, ISOL and In-flight separator), at the Rare Isotope Science Project (RISP)/Institute for Basic Science (IBS), Daejeon, South Korea (<http://www.risp.re.kr>);
- Member of the GANIL Program Advisory Committee (PAC) (since June 2015) (<http://pro.ganil-spiral2.eu/users-guide/pac/pac-members>);
- Referee for:  
Physical Review Letters, Physical Review C, European Physical Journal A, Nuclear Physics A, European Physics Letters, Journal of Physics G, Physics Letters B (with Certificate of Excellence in Peer Review in 2012 and 2013), Central European Journal of Physics, Nuclear Physics B, Physica Scripta, Chinese Physics Letters, International Journal of Modern Physics A, Advances in High Energy Physics, Nuclear Science and Techniques, Chinese Physics C, Modern Physics Letters A;
- Referee for research projects submitted to the Slovak Research and Development Agency, the Croatian Science Foundation (CSF) and National Science Center (NSC) of Krakow; Referee for the Nuclear Science Division at LBNL-Berkeley;
- Referee of the Department of Energy (DOE) – USA;
- Referee for the Italian University and Research Ministry;
- Referee for the selection of the COFUND postdoc fellowships, FELLINI project - “FELLowship for Innovation at INFN”.
- Member of the Editorial Board of Frontiers in Physics

### ❖ *Project coordination*

- Local coordinator of the INFN-project STRENGTH on the physics of structure and reactions with exotic beams;
- Local coordinator of the INFN-project NEUMATT: “Neutron Star Matter”;
- Coordinator of the Task1 of the Joint Research Activity (JRA) THEOS (ENSAR2 program of Horizon 2020 – ENSAR2-GA 654002 WP11 JRA3);
- Coordinator of the Theory Task of the NUMEN project: Determining the Nuclear Matrix Elements of Neutrinoless double beta decays by heavy-ion double charge exchange reactions (<https://web2.infn.it/NUMEN/index.php/it/>);
- Coordinator of the Theory Task of the INFN project GeNIALE - Geant Nuclear Interaction At Low Energy (<http://arpg-serv.ing2.uniroma1.it/arpg-site/index.php/research-projects/geniale>);
- 1997-present: Co-Supervisor of 14 Master Theses and 9 PhD Theses.
- 12 post-doctoral fellows advised.

## ❖ *Organization of Conferences and Schools*

Organization of 23 events, among which:

- Member of the Program Committee of the International Nuclear Physics Conference (INPC2013), Florence (Italy), June 2-7, 2013;
- Member of the Program Committee of the 12<sup>th</sup> International Conference on Nucleus-Nucleus Collisions (NN2015), Catania (Italy), June 21-26, 2015;
- Member of the Organizing Committee of the series of Nuclear Physics Schools “Frontiers in Nuclear and Hadron Physics”, Galileo Galilei Institute (GGI-Florence) (2014 – present);
- Member of the Organizing Committee of the “National Meeting on Nuclear Physics”: INFN2012 (LNS-Catania), INFN2014 (Padova), INFN2016 (LNF-Frascati), INFN2018 (LNS-Catania).




Dr. Maria Colonna  
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UCLouvain, Centre for Cosmology, Particle Physics and Phenomenology  
Università di Bologna, Dipartimento di Fisica e Astronomia



# Curriculum Vitae

Fabio Maltoni

A handwritten signature in black ink, which appears to read "Fabio Maltoni".

Professeur Ordinaire à l'UCL , Professore Ordinario a UniBO

March 2019

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# Curriculum Vitae

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## 1.1 Personal Data

*Name :* Fabio Maltoni

*Nationality:* Italian/Belgian

*Date and place of birth :* Bollate, Milano, 27 Sept. 1970

*Address:* Centre for Particle Physics and Phenomenology  
Université de Louvain  
Chemin du Cyclotron, 2  
Phone: +32 10 47 31 66

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via Irnerio, 46  
40100 Bologna  
Phone: +39 051 2091151

*e-mail :* `fabio.maltoni@uclouvain.be`  
`fabio.maltoni@unibo.it`

*Page web :* <http://maltoni.home.cern.ch>

## 1.2 Short Biography

I joined the Université catholique de Louvain in 2005, where I am currently full professor. After receiving my PhD from the University of Pisa in 1999, I worked in several institutions in Europe and the US. I am author of about 170 publications (123 in peer-review journals), that were cited more than 40,000 (34,000) times with an  $h=72$  ( $h=62$ ) [INSPIREHEP]. I am mostly known for my work on perturbative QCD, Higgs and top-quark phenomenology. I am senior author of the MadGraph5\_aMC@NLO suite, a widely used platform for making accurate predictions at colliders. Throughout my career, I have developed an original vision on how to bring together theorists and experimentalists in particle physics, promoting and

participating to many joint initiatives. I have taught courses at all levels in physics, such as Quantum Physics (12 years) in bac and EW and QCD interactions (10 years) in the master, and also introductory courses for Med/Vet/Eng students (5 years), and the PhD level in many international schools (CERN, TASI, GGI, TAE,...). I have supervised 15 PhD students to completion (the first graduated in 2009), 10 of which have continued in research and a few of them hold now permanent positions. I have also advised many post-docs (UCL, FNRS and EU MC-IF), the majority of which currently progressing towards more senior or permanent positions. I have obtained and managed funding by several sources and held numerous responsibilities at the national and international level. Since September 2018, I am also full professor at Università di Bologna.

### 1.3 Professional experience

- Since September 18: Professor at the Università di Bologna, (Professore Ordinario) at the Dipartimento di Fisica e Astronomia, Bologna (Italy)
- Since October 05: Professor at the Université catholique de Louvain, (2005-Chargé de cours, 2010-Professeur, 2015-Professeur ordinaire) Louvain-La-Neuve (Belgium).
- October 04: Theory Group Fellow at the TH-PH Divison, CERN Genève (CH).
- November 02: “New talent” Fellow at the “Centro studi e Ricerche Enrico Fermi”, via Panisperna 89/A, Roma (Italy).
- November 99: Research Associate in the High Energy Group, Physics Department, at the Illinois University at Urbana-Champaign Green Street 61, Urbana-Champaign (USA).
- December 98: Research Associate at the Department of Theoretical Physics at the University of Torino (Italy).

### 1.4 Recent publications

The complete list of my publication is available on inspirehep (author:F.Maltoni.1). Here follows the list of the last three years (starting now).

- A Monte Carlo global analysis of the Standard Model Effective Field Theory: the top quark sector



- By Nathan P. Hartland, Fabio Maltoni, Emanuele R. Nocera, Juan Rojo, Emma Slade, Eleni Vryonidou, Cen Zhang. arXiv:1901.05965 [hep-ph]. Submitted to: JHEP.
- Top-quark effects in diphoton production through gluon fusion at NLO in QCD  
By Fabio Maltoni, Manoj K. Mandal, Xiaoran Zhao. arXiv:1812.08703 [hep-ph].
  - Event generation for beam dump experiments  
By Luca Buonocore, Claudia Frugiuele, Fabio Maltoni, Olivier Mattelaer, Francesco Tramontano. arXiv:1812.06771 [hep-ph].
  - Probing the scalar potential via double Higgs boson production at hadron colliders  
By Sophia Borowka, Claude Duhr, Fabio Maltoni, Davide Pagani, Ambresh Shivaji, Xiaoran Zhao. arXiv:1811.12366 [hep-ph]. Submitted to: JHEP.
  - Review of Particle Physics  
By Particle Data Group (M. Tanabashi et al.). Phys.Rev. D98 (2018) no.3, 030001.
  - Top-Yukawa contributions to  $bbH$  production at the LHC  
By Nicolas Deutschmann, Fabio Maltoni, Marius Wiesemann, Marco Zaro. arXiv:1808.01660 [hep-ph]. Submitted to: JHEP.
  - Constraining anomalous gluon self-interactions at the LHC: a reappraisal  
By Valentin Hirschi, Fabio Maltoni, Ioannis Tsinikos, Eleni Vryonidou. arXiv:1806.04696 [hep-ph]. JHEP 1807 (2018) 093.
  - Constraining anomalous gluon self-interactions at the LHC: a reappraisal  
By V. Hirschi, F. Maltoni, I. Tsinikos, E. Vryonidou.  
arXiv:1806.04696 [hep-ph]. JHEP 1807 (2018) 093.
  - Single-top associated production with a  $Z$  or  $H$  boson at the LHC: the SMEFT interpretation  
By Celine Degrande, Fabio Maltoni, Ken Mimasu, Eleni Vryonidou, Cen Zhang.  
arXiv:1804.07773 [hep-ph].  
JHEP 1810 (2018) 005.
  - MadDM v.3.0: a Comprehensive Tool for Dark Matter Studies  
By Federico Ambrogio, Chiara Arina, Mihailo Backovic, Jan Heisig, Fabio Maltoni, Luca Mantani, Olivier Mattelaer, Gopolang Mohlabeng.  
arXiv:1804.00044 [hep-ph]. Phys.Dark Univ. 24 (2019) 100249.

- Les Houches 2017: Physics at TeV Colliders New Physics Working Group Report  
By G. Brooijmans et al..  
arXiv:1803.10379 [hep-ph].
- Lepton-pair production in association with a  $b\bar{b}$  pair and the determination of the  $W$  boson mass  
By Emanuele Bagnaschi, Fabio Maltoni, Alessandro Vicini, Marco Zaro.  
arXiv:1803.04336 [hep-ph]  
JHEP 1807 (2018) 101.
- Constraining the Higgs self couplings at  $e^+e^-$  colliders  
By Fabio Maltoni, Davide Pagani, Xiaoran Zhao.  
arXiv:1802.07616 [hep-ph],  
JHEP 1807 (2018) 087.
- Interpreting top-quark LHC measurements in the standard-model effective field theory  
By Juan Antonio Aguilar-Saavedra et al..  
arXiv:1802.07237 [hep-ph].
- Trilinear Higgs coupling determination via single-Higgs differential measurements at the LHC  
By Fabio Maltoni, Davide Pagani, Ambresh Shivaji, Xiaoran Zhao.  
arXiv:1709.08649 [hep-ph].  
Eur.Phys.J. C77 (2017) no.12, 887.
- Gluon-fusion Higgs production in the Standard Model Effective Field Theory  
By Nicolas Deutschmann, Claude Duhr, Fabio Maltoni, Eleni Vryonidou.  
arXiv:1708.00460 [hep-ph].  
JHEP 1712 (2017) 063, Erratum: JHEP 1802 (2018) 159.
- Handbook of LHC Higgs Cross Sections: 4. Deciphering the Nature of the Higgs Sector  
By LHC Higgs Cross Section Working Group (D. de Florian et al.).  
arXiv:1610.07922 [hep-ph].  
10.23731/CYRM-2017-002.
- Review of Particle Physics  
By Particle Data Group (C. Patrignani et al.).  
Chin.Phys. C40 (2016) no.10, 100001.

- tWH associated production at the LHC  
By Federico Demartin, Benedikt Maier, Fabio Maltoni, Kentarou Mawatari, Marco Zaro.  
arXiv:1607.05862 [hep-ph].  
Eur.Phys.J. C77 (2017) no.1, 34.
- Higgs production in association with a top-antitop pair in the Standard Model Effective Field Theory at NLO in QCD  
By Fabio Maltoni, Eleni Vryonidou, Cen Zhang.  
arXiv:1607.05330 [hep-ph].  
JHEP 1610 (2016) 123.
- Probing the Higgs self coupling via single Higgs production at the LHC  
By Giuseppe Degrossi, Pier Paolo Giardino, Fabio Maltoni, Davide Pagani.  
arXiv:1607.04251 [hep-ph].  
JHEP 1612 (2016) 080.
- Signal background interference effects in heavy scalar production and decay to a top-anti-top pair  
By B. Hespel, F. Maltoni, E. Vryonidou.  
arXiv:1606.04149 [hep-ph].  
JHEP 1610 (2016) 016.
- Exposing the dead cone effect with jet substructure techniques  
By Fabio Maltoni, Michele Selvaggi, Jesse Thaler.  
arXiv:1606.03449 [hep-ph].  
Phys.Rev. D94 (2016) no.5, 054015.
- Anatomy of double heavy-quark initiated processes  
By Matthew Lim, Fabio Maltoni, Giovanni Ridolfi, Maria Ubiali.  
arXiv:1605.09411 [hep-ph].  
JHEP 1609 (2016) 132.
- NLO predictions for the production of a spin-two particle at the LHC  
By Goutam Das, Celine Degrande, Valentin Hirschi, Fabio Maltoni, Hua-Sheng Shao.  
arXiv:1605.09359 [hep-ph].  
Phys.Lett. B770 (2017) 507-513.
- A comprehensive approach to dark matter studies: exploration of simplified top-philic models

By Chiara Arina et al..

arXiv:1605.09242 [hep-ph].

JHEP 1611 (2016) 111.

- Probing top quark neutral couplings in the Standard Model Effective Field Theory at NLO in QCD

By Olga Bessidskaia Bylund, Fabio Maltoni, Ioannis Tsiniikos, Eleni Vryonidou, Cen Zhang.

arXiv:1601.08193 [hep-ph].

JHEP 1605 (2016) 052.

## 1.5 Recent teaching at international schools for PhDs (2015-2018)

1. 2018 BUSSTEP, Oxford, Aug 2018  
Title of the course: “Collider Phenomenology” .
2. 2018 European School of High-Energy Physics (ESHEP2018), Matera, July 2018  
Title of the course: “Higgs Physics” .
3. 2018 INFN Spring School in Frascati, May, 2018.  
Title of the course: “Top and Higgs Physics” .
4. LASNPA-WONP-NURT School October 23-27, 2017, Havana, Cuba.  
Title of the course: “QCD and Collider Physics” .
5. GGI School of fundamental interactions, Jan 2017, Florence.  
Title of the course: “QCD and Collider Physics” .
6. AEPSHEP2016-China, Oct 2016, Beijing.  
Title of the course: “QCD and Collider Physics” .
7. FeynRules/MadGraph LHC Phenomenomenology School, Nov 2015, Shanghai (China).  
Title of the course: “Introduction to LHC phenomenology” .
8. HiggsTools Summer School, June 2015, Val d’Aosta (Italy).  
Title of the course: “EFT for the Higgs” .
9. Invisibles Summer School, June 2015, Madrid (Spain).  
Title of the course: ”Event simulation for the LHC” .

10. Pavia Doctoral School, May 2015, Pavia (Italy).  
Title of the course: "MC's : event simulation for the LHC".

## 1.6 Recent seminars, conferences and workshops (2014-2018)

1. (Invited) DESY Zeuthen Theory Seminar, Zeuthen, 2018, DE  
Title of the seminar : "Probing the Higgs trilinear self coupling at the LHC"
2. (Invited) TUM Theory Seminar, Munich, 2018, DE  
Title of the seminar : "Probing the Higgs trilinear self coupling at the LHC"
3. IIP workshop on : "LHC, Chapter II", Nov 2017, Natal, Brasil  
Title of the seminar (plenary) : "Probing the Higgs trilinear self coupling at the LHC"
4. EFT Workshop at IPPP, Sept 2017, Durham  
Title of the seminar (plenary) : "Tools for EFT studies at the LHC"
5. (Invited) Particles and Field seminar, Oxford Univ., 2017, Oxford, UK  
Title of the seminar : "Probing the Higgs trilinear self coupling at the LHC"
6. (Invited) HEP seminar, Buffalo Univ., Aug 2017, Buffalo, US  
Title of the seminar : "Probing the Higgs trilinear self coupling at the LHC"
7. (Invited) CCCP seminar, New York University, Aug 2017, NY, US  
Title of the seminar : "Probing the Higgs trilinear self coupling at the LHC"
8. SM@LHC, May 2017, Amsterdam  
Title of the seminar (plenary) : "Tools for EFT studies at the LHC"
9. ICAS Workshop, Sept 2016, Buenos Aires  
Title of the seminar (plenary) : "Status and future of precise predictions with NLO MC's"
10. KITP conference, May 2016, Santa Barbara  
Title of the seminar (plenary) : "NLO MC tools for collider Physics "
11. DM@LHC, March 2016, Amsterdam  
Title of the seminar (plenary) : "MC tools for LHC Physics "
12. Aspen Winter conference, Jan 2016, Aspen  
Title of the seminar (plenary) : "NLO MC tools for collider Physics "
13. Meeting della Società Italiana di Fisica 2015  
Title of the seminar : "Precision Physics at the LHC", September 2015

14. Gordon Conference on Particle Physics, Hong-Kong, June 2015  
Title of the seminar (plenary): “Top quark physics”
15. Particle Phenomenology, Portoroz, Slovenia, April 2015  
Title of the seminar (plenary): “The top/Higgs gateway to New Physics”
16. Kaeru Conference, IPMU, Tokyo, Japan, March 2015  
Title of the seminar (plenary): “Status and prospects of the SM for Run II”
17. ATLAS Italia, Milan Italia, Feb 2015  
Title of the seminar (plenary): “Status and prospects of the Higgs for Run II”
18. Discovery Physics at the LHC, Kruger Park (South Africa) 2 Dec 2014  
Title of the seminar (plenary): “Physics of the Higgs beyond the SM”
19. ATLAS Physics Workshop: ready for Run II, Aix-Les-Bains (F), 19 Nov 2014  
Title of the seminar (plenary): “Status and prospects of the SM for Run II”
20. Colloquium at Univ. of Bologna, Bologna, 17 Nov 2014  
Title of the seminar (plenary): “The top/Higgs gateway to New Physics”
21. ATLAS meeting on BSM Higgs, 13 Oct 2014  
Title of the seminar (plenary): “MonteCarlo’s for BSM Higgs”
22. LNS Colloquium, MIT, 27 Oct 2014  
Title of the seminar (plenary): “The top/Higgs gateway to New Physics”
23. CMS Physics Week, CERN, 15 Oct 2014  
Title of the seminar (plenary): “MadGraph5\_aMC@NLO accurate and precise simulations ”for the LHC
24. Higgs Days in Santander, Santander, Sept 2014  
Title of the seminar (plenary): “Accurate simulations for bbH”.
25. Frontiers in Fundamental Physics 2014, Marseille, July 2014  
Title of the seminar (plenary): “The top-quark gateway to New Physics”.
26. The flavour of the Higgs Workshop 2014, Weismann Institute, Israel, June 2014  
Title of the seminar (plenary): “Accurate, Automatic, Augmenting MC’s for the LHC”.
27. Physics at 100 TeV Collider Workshop, SLAC, April 2014,  
Title of the seminar (plenary): “The top-quark gateway to New Physics”.
28. Top-quark LHC France, Lyon, April 2014  
Title of the seminar (plenary): “Single top : SM and BSM”.

29. Lake Louise Winter Institute, Canada, Feb 2014,  
Title of the seminar (plenary): “The top-quark gateway to New Physics”.

## 1.7 Current people responsibilities at UCL

### Post-docs

- **Jan Heisig**  
Oct 2018 - Sept 2020 (EOS)  
Title of the research project : “ Dark Matter searches”.
- **Michele Lucente**  
Oct 2016 - Sept 2019 (MC-IF)  
Title of the research project : “ MadBaM”.
- **Ken Mimasu**  
Oct 2016 - Sept 2019 (MC-IF)  
Title of the research project : “ EFT at the LHC”.

### Ph.D.’s

- **Xiaoran Zhao**  
Ph.D.: MCnet since March 2017  
Title of the research project : “Precision EFT at the LHC”.
- **Luca Mantani**  
Ph.D.: MCnet since Sept 2017  
Title of the research project : “Exploratory EFT at the LHC”.
- **Luca Pagani**  
Ph.D.: UniBO since Sept 2018  
Title of the research project : “Effective Field Theories”.

## 1.8 Prizes

- Francqui Research Professor 2012-2015 UCL .
- Chaire Francqui at 2010-2011 VUB.

## 1.9 Academic responsibilities at UCLouvain

- Member of the board of the School of Physics, 2010-2012.
- Member of the board of the l'Institut de Recherche en Mathématique et Physique (IRMP), 2010-2012 and 2016-2018.
- Responsible of the School of Physics for the Erasmus et Mercator programs (since 2007).
- Member of the Conseil des Relations Internationales (CRI), 2008-2013.
- President of the CRI-SC committee 2009-2013.
- Member of the CRI-SST (since 2013).
- Member of the strategy group for the internationalisation lead by the pro-recteur Prof. V. Yzerbyt (2010) and author. the note GTAI.
- Member of the commission for the reform of the programme of the Master en Physique in 2007 and in 2018.
- Member of the commission for the selection of permanent academics in physics en 2013 and in 2017.

## 1.10 Research responsibilities at UCLouvain and national level

- Director of the Centre for Cosmology, Particle Physics and Phenomenology, 2015-2018.
- Responsable of Claude Duhr, chercheur qualifi UCLouvain Oct. 2014-Oct 2016.
- Responsable of Olivier Mattelear IT scientist (permanent) for MadGraph, since Oct. 2017.
- Responsable of Innoviris Grant (5-year junior position) of Dr. Chiara Arina, since Oct. 2016.
- Advisor of 15 PhD students to successful completion. 3 PhD theses in course.
- Advisor of more than 20 post-docs in the last 10 years.
- Coordinator EOS be.h, "The H boson gateway to New Physics", 2018-2021.
- PI convention FNRS-IISN, "MadGraph/MadEvent", 2009-2016.
- PI convention FNRS-IISN, "MaxLHC", since 2016.



- PI convention FNRS-IISN, “Theories of Fundamental interactions’, since 2009.
- PI convention FNRS-IISN, “Theory and experiment of fundamental interactions”, since 2017.
- PI PAI-VII, “Fundamental interactions’., Theory/Pheno group.
- Member of the FRIA-FNRS committee for the PhD grants at the national level since 2010.
- Member of the national commission for the report on the CERN fellow candidates.

## 1.11 Responsibilities at the international level

- Local PI of Initial Training Network (ITN), MCnet Marie Curie actions, 2012-2016.
- Local PI of Initial Training Network (ITN), MCnetITN3, Marie Curie actions, 2017-2021.
- Local PI of Initial Training Network (ITN), AMVA4NP, Marie Curie actions, 2016-2020.
- Member of the Marie Curie Research Training Network, “Tools and Precision Calculations for Physics Discoveries at Colliders”, MRTN-CT-2006-035505.
- Member of three COST actions.
- PI topping Grant PAI, with India, 2015-2017 and PT4LHC (renewal), 2018-2021.
- PI de MISTI seed funds Grant with MIT (Boston), 2013-2015.
- Co-PI d’ ERC-Advanced Grant “LHC Theory” with M.L.Mangano - 2012-2017.
- Since 2018 member of the EPS-HEP Board.
- Since 2016 member of the Theory Advisory Committee (TAC) of the HXSWG.
- 2014-2016 member of the Steering Committee of Higgs Cross Section Working Group at CERN (HXSWG).
- Since 2013 member of the Particle Data Group and co-author of the review on the “Top Quark”.
- Since 2010 member of the advisory board ”International Workshop on Top Quark Physics”.
- Co-organiser of EPS-HEP Conference 2019 in Ghent, Belgium.
- Co-organiser of 2010 of the ”International Workshop on Top Quark Physics”, in Bruges, Belgium.

- Co-organiser MC4BSM in 2008 at CERN.
- Since 2012 referee per IANR (Agence Nationale de Recherche).
- Since 2006 founder and coordinator of the "MadGraph School on LHC phenomenology" (8 editions).
- Since 2006 co-coordinator of the MadGraph development team (20 members).
- Since 2006 teacher at international PhD schools: 25 lecture series in the last 10 years.
- Co-organiser of the workshop series on Vector bosons + heavy flavors in Berkeley.
- Main organiser of the series of workshops Matrix Elements methods , Belgium (UCL-2013) et Switzerland (Zurich-2014).
- Co-organiser of the workshop (12 weeks) LHC13 au KITP, S. Barbara Apr-Jul 2013.
- Member of more than 40 PhD juries abroad.
- Jury member for the "Habilitation á Diriger des Recherches" (HDR) in France per Anne-Isabelle Etendrie (CEA-2010), Roberto Chierici (Lyon, 2011), Benjamin Fuks (Strasbourg, 2013), Jean-Philippe Lanbserg (Paris, 2018).
- Member of several hiring committees in Belgium and abroad.
- Referee for international journals: PRD,PRL, JHEP, EJPC, PLB, NPB.
- Referee for research agencies: ANR, PRIN, STFC, ERC, FNRS.

NAME Massimo Pietroni  
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NATIONALITY Italian

#### PRESENT POSITION

"Professore Straordinario" at University of Parma, Department of Mathematical, Physical and Computer Sciences.

#### EDUCATION

Laurea in fisica

*Trieste University* *1990*  
Laurea Thesis: "Heavy meson decays and the quark mixing matrix", supervisor: Prof. Nello Paver,  
110/110 cum laude

phd in physics  
*Padova University*  
*1990-1993*  
Thesis: "Baryogenesis at the electrowak phase transition in supersymmetric models", supervisor:  
Prof. Antonio Masiero

#### POST-DOCTORAL EXPERIENCE

DESY-Hamburg  
*Research Associate*  
*1994-1995*

cern-geneva  
*EC fellow*  
*1995-1997*

padova university  
*Post-doctoral fellow (June-December)*  
*1997*

INFN-PADOVA  
*Ricercatore*  
*1998-2007*

INFN-PADOVA *2007-present*  
*Primo Ricercatore*

University of Parma *October 2016-present*  
*Professore Staordinario*

#### INSTITUTIONAL ACTIVITY

2007-2008: National coordinator of the INFN grant PD21 (particle physics phenomenology and astroparticle physics).

2007-2011: Coordinator of the INFN - Padova theory group.

2017-present: Scientific board of DSMFI at University of Parma (member).

## RESEARCH INTERESTS

Astroparticle physics, Cosmology. In particular, in recent years, my main field of activity is cosmological perturbations beyond linear order, applied to the large scale structure of the universe

## SCIENTIFIC RESPONSIBILITIES

EUCLID Collaboration: Co-lead of Working Package on "Analytical approaches on non-linearities", of the Theory Working Group

## GRANTS AND PROJECT

from February 11th to 26th 2017 secondment in the framework of H2020-RISE InvisiblesPlus grant G.A. n. 690575a, Tokyo- IPMU.

From June 1st to July 31st, Visiting Professor at Theoretical Physics Department, Heidelberg University, Germany.

## UNIVERSITY TEACHING

2018-2019: Courses on "Introduction to Nuclei and elementary particles", and "Astroparticle Physics" Physics Department, Parma University;

2017-2018: Courses on "Introduction to Nuclei and elementary particles", and "Astroparticle Physics" Physics Department, Parma University;

2016-2017: Course on "Astroparticle Physics", Physics Department, Parma University; Course on "Selected Topics in Theoretical Physics", Physics Department, Parma University;

2015-2016: Course on "Selected Topics in Theoretical Physics", Physics Department, Parma University;

2014-2015: Course on "Open problems in Theoretical Physics", Scuola Galileiana, Padova. Course on "Selected Topics in Theoretical Physics", Physics Department, Parma University;

2013-2014: Course on "Fundamental Interactions", 40 hours, for Master students in Physics, Parma University; Course on "Nonlinear Methods for the Large Scale Structure", Institute of Theoretical Physics, University of Heidelberg, Germany

2006-2012: Cosmology Course for PhD students, Physics Department, Padua University. Astroparticle Physics Course for undergraduates, Physics Department, Parma University supervisor or co-supervisor of 6 PhD students and 7 undergraduates.

## INTERNATIONAL SCHOOLS

December 2016: Teaching at XIII TRR33 Winter School on Cosmology, Heidelberg University, Tonale, Italy, 4 invited lectures (4 hours). December 2014: Teaching a VIII TRR33 Winter School on Cosmology, Heidelberg University, Tonale, Italy, 4 invited lectures (4 hours). December 2011: Teaching at the international school LACES 2011, Galileo Galilei Institute, Florence, Italy. "Cosmology", 4 invited lectures (8 hours). April 2011: Teaching at XXVI Heidelberg Physics Graduate Days, Heidelberg, Germania: "Cosmological Perturbations for the large scale structure of the universe: towards the translinear frontier". 5 invited lectures (15 hours).

10-13 June 2008: Teaching at workshop on "Dark Energy and Cosmological Perturbation Theory", Valencia, Spagna. 4 invited lectures. 23-28 February 2008: Teaching at Schladming Winter School "Non-equilibrium aspects of Quantum Field Theory From cosmology to table-top experiments", Schladming, Austria. 4 invited lectures.  
17-20 December 2002: Teaching at 'Cosmology Crash Course', Institut Henri Poincaré, Paris.

#### INVITED TALKS

''II Workshop on current challenges in cosmology'' Bogotá, Colombia, November 2018; Long-term workshop "Gravity and Cosmology 2018", Yukawa Institute, Kyoto, Japan, Feb 2018; CERN TH institute "The big bang and the little bangs - Non-equilibrium phenomena in cosmology and heavy ion collisions" taking place at CERN 15-26 August 2016. Galileo Galilei Institute, Workshop su "Theoretical Cosmology in the Era of Large Surveys", May 2016; Vulcano Workshop 2014 "Frontier Objects in Astrophysics and Particle Physics", Vulcano, Italy, 18-21, May, 2014; Workshop "Origin of cosmic structures : numerical and theoretical approaches", Institut Henri Poincaré 25 november to 29 November 2013, Paris, France; LSS13-workshop, 30 June-5 July, 2013, Ascona, Switzerland; PTchat workshop, 30 May-3 June 2013, Cargese, Corse, France . CERN Theory Institute on "Theoretical methods for non-linear cosmology", CERN, Geneva, September 3rd-7th, 2012, Invited Talk on "Resummed and coarse grained perturbation theory"; Cosmology Moriond Meeting, La Thuile, March 10th-12th, 2012, invited talk on "Large Scale Structure"; "The Dark Universe Conference", Heidelberg, Germany, 4th-7th October 2011, "Understanding Dark Energy from the Trans-linear Frontier"; "PtChat workshop", Saclay, France, 20th-22nd September 2011, "Coarse-grained perturbation theory"; "Renormalization Group Approach from Ultra Cold Atoms to the Hot QGP", Kyoto, Japan, August 29th-September 2nd, 2011, "Coarse-graining and resummation of cosmological perturbations"; "Vth International Workshop on the Interconnection between Particle Physics and Cosmology (PPC2011)", CERN-Geneva, Switzerland, 14th-18 June, 2011, "Halo clustering and velocity dispersion in (resummed) perturbation theory".

#### CONFERENCE ORGANIZATION

"European Physical Society - High Energy Particle Physics Conference", Grenoble, France, 21st-27th July, 2011: convener della sessione parallel "Cosmology and Gravity"; "Dark Workshop @ GGI", Firenze, Italy, 25th-27th October 2011: coordinatore del Scientific Organization Committee.

#### RECENT PUBLICATIONS

- 1) Extracting the BAO scale from BOSS DR12 dataset, By Eugenio Noda, Marco Peloso, Massimo Pietroni. arXiv:1901.06854 [astro-ph.CO].
- 2) Structure formation beyond shell-crossing: nonperturbative expansions and late-time attractors. By Massimo Pietroni, arXiv:1804.09140 [astro-ph.CO]. 10.1088/1475-7516/2018/06/028. JCAP 1806 (2018) no.06, 028.
- 3) BAO Extractor: bias and redshift space effects, By Takahiro Nishimichi, Eugenio Noda, Marco Peloso, Massimo Pietroni. arXiv:1708.00375 [astro-ph.CO]. 10.1088/1475-7516/2018/01/035. JCAP 1801 (2018) no.01, 035.
- 4) A Robust BAO Extractor. By Eugenio Noda, Marco Peloso, Massimo Pietroni. arXiv:1705.01475 [astro-ph.CO]. 10.1088/1475-7516/2017/08/007. JCAP 1708 (2017) no.08, 007.
- 5) Galilean invariant resummation schemes of cosmological perturbations. By Marco Peloso, Massimo Pietroni. arXiv:1609.06624 [astro-ph.CO]. 10.1088/1475-7516/2017/01/056. JCAP

1701 (2017) no.01, 056.

6) The effect of massive neutrinos on the BAO peak. By Marco Peloso, Massimo Pietroni, Matteo Viel, Francisco Villaescusa-Navarro. arXiv:1505.07477 [astro-ph.CO]. 10.1088/1475-7516/2015/07/001. JCAP 1507 (2015) no.07, 001.

7) A coarse grained perturbation theory for the Large Scale Structure, with cosmology and time independence in the UV. By Alessandro Manzotti, Marco Peloso, Massimo Pietroni, Matteo Viel, Francisco Villaescusa-Navarro. arXiv:1407.1342 [astro-ph.CO]. 10.1088/1475-7516/2014/09/047. JCAP 1409 (2014) no.09, 047.

8) Search for time modulations in the decay rate of  $^{40}\text{K}$  and  $^{232}\text{Th}$ . By E. Bellotti, C. Brogini, G. Di Carlo, M. Laubenstein, R. Menegazzo, M. Pietroni. arXiv:1311.7043 [astro-ph.SR]. 10.1016/j.astropartphys.2014.05.006. Astropart.Phys. 61 (2015) 82-87.

9) Ward identities and consistency relations for the large scale structure with multiple species. By Marco Peloso, Massimo Pietroni. arXiv:1310.7915 [astro-ph.CO]. 10.1088/1475-7516/2014/04/011. JCAP 1404 (2014) 011.

10) Spherical collapse and halo mass function in the symmetron model. By Laura Taddei, Riccardo Catena, Massimo Pietroni. arXiv:1310.6175 [astro-ph.CO]. 10.1103/PhysRevD.89.023523. Phys.Rev. D89 (2014) no.2, 023523.

11) Galilean invariance and the consistency relation for the nonlinear squeezed bispectrum of large scale structure. By Marco Peloso, Massimo Pietroni. arXiv:1302.0223 [astro-ph.CO]. 10.1088/1475-7516/2013/05/031. JCAP 1305 (2013) 031.

Parma, February 14th, 2019

Massimo Pietroni



## CURRICULUM VITAE SINTETICO

### GIULIA RICCIARDI

#### POSIZIONE ATTUALE

Professore Associato per il settore scientifico-disciplinare FIS/02, Fisica teorica, modelli e metodi matematici, presso il Dipartimento di Fisica E. Pancini dell'Università degli Studi di Napoli Federico II

#### TITOLI ACCADEMICI

##### **Scuola Normale Superiore di Pisa**

Diploma di Perfezionamento in Fisica teorica (equipollente al diploma di dottorato di ricerca), votazione 70/70 e lode.

##### **Università degli Studi di Napoli "Federico II"**

Laurea quadriennale in fisica, votazione 110/110 e lode.

#### PRINCIPALI ATTIVITA' DI RICERCA POST-LAUREAM

##### *Estero*

- Harvard University (Cambridge, Ma, U.S.A.)
  - Ricercatore associato
  - Post-doctoral fellow
- Attività di ricerca in fisica teorica presso Nikhef, Amsterdam (Paesi Bassi), Technical University Munich (TUM), Monaco (Germania), Laboratoire de Physique Théorique de l'Université de Paris XI, Centre d'Orsay (Francia), Divisione teorica del CERN, Ginevra (Svizzera), Brookhaven National Laboratory, Department of Physics, Upton, (USA)

##### *Italia*

- Dipartimento di Fisica dell'Università degli Studi di Napoli "Federico II":
  - Ricercatore Universitario
  - Post-dottorato
- Dipartimento di Fisica dell'Università degli Studi di Roma "La Sapienza": Borsa di studio
- Scuola Normale Superiore di Pisa: Scuola di Perfezionamento triennale

#### DIDATTICA

- Corsi di *Meccanica Quantistica, Fisica teorica, Fisica teorica subnucleare, Interazioni forti, Fisica dei neutrini, Fisica dei sapori pesanti, Fisica generale I* (livello da laurea a post-dottorato), in Italia (Università di Napoli, Milano) e all'estero (Spagna, India, Cina)
- Relatore e correlatore, in Italia e all'estero, di tesi di laurea magistrale e di dottorato
- Membro Collegio dei docenti di Dottorato in Fisica della Università di Napoli Federico II

#### PREMI

- Premio per Scientific Production in Physics, Società Italiana di Fisica (SIF)
- A. Stanghellini Award, "E. Majorana" Foundation and Centre for Scientific Culture – Erice
- Jun J. Sakurai Award, "E. Majorana" Foundation and Centre for Scientific Culture – Erice

## PRICIPALI LINEE DI RICERCA

- Fisica teorica subnucleare, teoria dei campi
- Fisica del flavour
- QCD fenomenologia e teoria
- Spettroscopia e fisica esotica
- Leptogenesi e fisica del neutrini

## PRINCIPALI RESPONSABILITA' SCIENTIFICHE

Ha svolto e/o svolge funzioni di

- Chairperson e membro del Comitato scientifico di Conferenze, Workshops, Istituti di fisica teorica e Scuole di fisica
- Fondatore e chair, dal 2006, del Workshop on "Theory, Phenomenology and experiments in flavour Physics" (Anacapri, Italy), edizione più recente 2018
- Co-chair programma teorico congiunto MITP(Mainz)-Federico II (2016, 2018, 2020)
- Revisore esterno per pubblicazioni scientifiche (Phys. Rev. Lett., Phys Lett. B, Phys. Rev. D, JHEP, ...) e progetti di ricerca erogati da Istituzioni Universitarie e Enti di ricerca italiani ed esteri (VQR, FIRB, NSERC, MIUR, HRZZ)
- Principal investigator del Progetto di Ricerca Theory, Phenomenology and experiments in Heavy flavour Physics dell'Università degli Studi di Napoli Federico II, finanziato dalla Regione Campania (2006)
- Responsabile di progetto Erasmus e responsabile locale ISN INFN
- Co-Editore di Atti di Conferenze e membro comitato redazionale
- Commissario per valutazioni comparative e concorsi per borse e assegni di ricerca, dottorato, posizioni da ricercatore (INFN, Università italiane e estere)
- Membro Consiglio Direttivo Associazione Normalisti, socio vitalizio Associazione Normalista e Società italiana di relatività generale e fisica della gravitazione (SIGRAV)

## ABILITAZIONE SCIENTIFICA NAZIONALE

Abilitata prima fascia Sett. Conc. 02/A2

## SEMINARI RECENTI SU INVITO

- *Munich Institute for Astro- and Particle Physics (MIAPP), Interface of Effective Field Theories and Lattice Gauge Theory*, 18-28/10/18 (EFT for B-physics, 24/10/2018)
- *XXIII Conferenza SIGRAV Relatività Generale e Fisica della Gravitazione*, 09-15/9/18, Santa Margherita di Pula, Italy (Interplay with flavour physics, 14/09/2018)
- *XIIIth Quark Confinement and the Hadron Spectrum*, 1-6/08/2018, Maynooth, Irlanda (|Vxb| determination: an updated theoretical prospective, 1/08/2018)
- *Seventh International Workshop on Theory, Phenomenology and experiments in flavour Physics*, 08-10/6/2018, Anacapri, Italy (Opening address)
- *Lio International Conference on Flavour Physics "From Flavour to New Physics"*, 18-20/04/2018, Lyon, Francia (LFNU in non-minimal 331 models, 19/04/2018)