

# Claudio Corianò

CV

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[link: webpage at UniSalento](#)

[link: Coordination of the Ph.D. Program in Physics and Nanoscience at the University of Salento](#)

- 1978-1983 **High School Education**, *Liceo Scientifico C. De Giorgi, Lecce. Grade 60/60.*
- 1983-1987 **Undergraduate Studies in Italy**, *Laurea in physics 110/110 cum Laude from Physics Department, University of Turin. Thesis : On partial susy breaking in N=4 supergravity with gauge group  $E_8$ . Advisor Prof. Pietro Frè.*
- 1987 **Graduate Admissions**, *Admitted at the graduate schools of SUNY at Stony Brook, NY and of Massachusetts Institute of Technology, Boston, for a Ph.D. in Physics.*

## International Studies

- 1987-1992 **Graduate Studies**, *Ph.D student at Stony Brook, working at the Institute for Nuclear Theory (director Prof. Gerald E. Brown) and at the Institute for Theoretical Physics (director Prof. C.N. Yang, Nobel laureate) (supervisor Prof. George Sterman).*
- 1987-1992 **Scholarships**, *Fullbright commission, United Nations Sections and SUNY at Stony Brook.*
- 1988 **Master**, *Department of Physics, S.U.N.Y. at Stony Brook.*
- 1992 **Graduate degree**, *Doctor of Philosophy (Ph.D.), Department of Physics and C.N. Yang Institute for Theoretical Physics, SUNY at Stony Brook (Luglio 1992) Thesis: Studies on Strong Interactions. Advisor Prof. George Sterman.*
- 1998-2000 **Postgraduate studies**, *postgraduate studies in computer science, in the Computer Science Department, College of William and Mary, Williamsburg, Virginia, US, on compiler constructions, performance evaluation, analysis of algorithms and data structures.*

## Postdoctoral activity 1992-1999

- 1992-1993 **Postdoctoral research**, *Postdoctoral fellow at the University of Stockholm, Sweden, Physics Department.*
- 1992-1993 **Fellowships**, *Boncompagni-Ludovisi Trust fellowship, Stockholm, Sweden.*
- 1993-1995 **Postdoctoral research**, *Argonne Natl. Lab, University of Chicago, (High energy physics division). US Department of Energy fellowshp.*
- 1995-1997 **Postdoctoral research**, *Institute for Fundamental Theory, University of Florida at Gainesville (Director Prof. Pierre Ramond).*
- 1997-1999 **Postdoctoral research**, *Theory Division (Director Prof. Nathan Isgur), Thomas Jefferson Laboratory, Virginia, US Department of Energy fellowship.*

## Research Activity

*High Energy Physics, Quantum Field theory, Quantum Chromodynamics, Physics Beyond the Standard Model, Axion Physics, Collider Phenomenology, Conformal Field Theory in Higher dimensions, Amplitudes*

*and Conformal Symmetry, Gravitational Waves, Conformal Extensions of the Standard Model, Nonlocal Cosmologies.*

## Publications

**1990-**, about 170 articles, of which 120 peer reviewed articles, 40 articles in proceedings on journals, 3 contributions to international study groups. 4 editorial publications. Downloadable from [inspirehep.net](https://inspirehep.net).

## Academic activity and qualifications in the Italian national university system

**1999-2002**, Tenure track researcher, Univ. of Salento.

**2002-2010**, Tenured researcher, Univ. of Salento.

**2011-2019**, Associate professor, Univ. of Salento.

**20012**, Qualification, National habilitation to full professor in the area FIS-02-A2, Elementary particle theory and mathematical methods for physics (2012-2021).

**20019**, National habilitation to full professor in the area FIS-02-A2, Elementary particle theory and mathematical methods for physics (2021-2029).

**2020-**, Coordinator of the Ph.D. Program in Physics and Nanoscience at the University of Salento (about 50 students), 30 faculty members in the "Collegio dei Docenti". Has promoted the creation of a joint graduate program with the Universities of Bari, Napoli and Caserta (Vanvitelli).

**2000-2019**, Chief organizer and Director of 4 international graduate schools in high energy theory and phenomenology. Chairman for the final meeting of the European network on cosmology (Universenet) (2010). Chairman of an international school on holographic cosmology (2019).

**2000-2019**, Teaching, Teaches regular courses in quantum field theory, physics of the fundamental interactions, computational methods in physics, for students specialising both in theoretical and experimental physics, 120 hours per year.

**2000-2019**, Teaching, Teaches undergraduate courses in thermodynamics, statistical mechanics for mathematicians, statistical mechanics for physicists, for 6 credit hrs (200-2008) per year, and 12 credit hrs (2008-2019) per year.

**2021**, Grants, Principle investigator for a PRIN grant application with the University of Salento, Bari and Naples in particle phenomenology.

**2021**, Referee Activity, Referee for the Swiss National Science Foundation for 2 large grants (Univ. Zurich and Bern) ( $> 1.5$  million CHF); for the Catholic Univ. of Chile (2020) and for the Estonian Science foundation (300 KE).

**2021**, Direction of Intl. meetings, Co-organiser with Prof. Paul H. Frampton of the Graduate Webinars "Lecce Lectures" 2021, with the participation of top international scientists, among which 3 Nobel laureates (speakers: Gerard 't Hooft, Subir Sarkar, Giorgio Parisi, Roger Penrose, John Mather, Martin Rees).

## Teaching

**2010, 2018**, Courses in Elementary particle Theory (6 credits), Computational Physics (6 credits) for 120 hours per year.

**2018, 2021, Courses in Elementary particle Theory (6 credits), statistical Mechanics (6 credits), 120 hours per year.**

**2000, 2020, Courses in the doctoral program in quantum field theory and cosmology (20 hours per year), chairing seminars and several international schools.**

## Visiting positions

**2015, Leverhulme Professor at the Mathematics department of the University of Southampton, developing methods for the analysis of the Cosmic microwave background and holographic cosmology.**

## Partecipation to national grants

2000- **PRIN**, Participates to 4 national grants (PRIN), 24 months each, in the area of particle theory, coordinated by Giancarlo Rossi, Roberto Petronzio, Luciano Maiani and Riccardo Barbieri.

2005 **Membership**, Member of the Pax collaboration (2005) on polarized collisions. .

## Membership

2014-2019 **Graduate committees**, Supervisors for graduate admissions at the University of Salento, physics department.

## Organization of scientific events and Coordination of Research Activity

International Schools **2004, Chairman, Italo Hellenic School of Physics : The physics of LHC , Martignano (Lecce) May 20-24, 2004, 50 participants, 10 speakers. budget: 15.000 euro. In collaboration with Profs. Vincenzo Barone (Alessandria) and Phil Ratcliffe (Como) .**

**2005, Chairman: Italo-Hellenic School of Physics 2005: The Physics of LHC: Theoretical Tools and Experimental Challenges 9-14 Jun 2005. Martignano, Lecce, Italy, 10 speakers, 40 participants; budget 15.000 euro. In collaboration with Profs. Vincenzo Barone (Alessandria) and Phil Ratcliffe (Como) .**

**2006, Chairman : Italo-Hellenic School of Physics 2006: The Physics of LHC: Theoretical Tools and Experimental Challenges 12-18 giugno 2006. 40 participants. Martignano, Lecce, Italy, budget 12.000 euro. In collaboration with Profs. Vincenzo Barone (Alessandria) and Phil Ratcliffe (Como) .**

**2010, Chairman: 4th Summer School on the Physics of LHC 2010: Theoretical and Experimental Aspects 14-19 Jun 2010. Lecce, Italy, 10 speakers, 40 students. budget 14.000 euro. In collaboration with Profs. Vincenzo Barone (Alessandria) and Phil Ratcliffe (Como).**

Organization of European meetings **2010, Chairman: 4th Universenet School : frontiers of Particle Cosmology (Final meeting of the European network Universenet) 110 participants. Coordinator: Prof. Subir Sarkar (Oxford), funded by the network .**

Workshps Organization **2012, Co-Chair of the Organizing Committee (Profs. P. Colangelo e Fulvia De Fazio) Workshop QCD@work 6th International Workshop on Quantum Chromodynamics - Theory and Experiment (QCD@WORK2012) : Lecce, Italy, June 18-21. 80 participants.**

**2014, Member of the organizing committee 7th International Workshop on QCD - Theory and Experiment (QCD@Work 2014) 16-19 june 2014. Giovinazzo, Bari, Italy .**

**2016**, Member of the organizing committee 8th International Workshop on QCD - Theory and Experiment (QCD@Work 2014) 27-30 June 2016. Martina Franca, Italy .

**2018**, Member of the organizing committee 9th International Workshop on QCD - Theory and Experiment (QCD@Work 2014) 25-28 June 2018. Matera Italy .

**2019**, Co-Chair : International School on Amplitudes and Cosmology, Holography and Positive Geometries Lecce, 27 May 2019 to 1 June 2019 Ex-convitto Palmieri. 50 international students, 5 speakers. In collaboration with Dr. Paolo Benincasa (Niels Bohr Intl. Academy, Copenhagen (<https://agenda.infn.it/event/18103/>)).

**2022**, Member of the organizing committee 10th International Workshop on QCD - Theory and Experiment (QCD@Work 2022) 27-30 Jun 2022 Lecce Italy .

Coordination **2000-2019**, Coordinator for Lecce of the INFN clusters BARI-21 and QFT-HEP.

## Referee service

Intl. activity **2016-2019**, Referee for the Swiss National Science Foundation for large grants..

**2019**, Referee per la Estonian Science Foundation for large grants.

Referee for journals **2000-2019**, Referee for Physical Review D and European Physics Journal in the area of high energy physics and Classical and Quantum Gravity for field theory and gravity.

Editor **2019-**, Review Editor per Frontiers in Physics, High energy theory and astroparticle physics.

Editor **2020-**, Editor for "Symmetry" MDPI.

## International visits (longer than 10 days) Short List

**2002**, 11 July 2002.

Physics Department Oxford UK, April 2002

**2003**, Physics Department Oxford UK, April 2003, 1 month, funding: Royal Society .

**2003**, National University of Singapore April 2003, funding: University Scholars Program, Singapore.

**2004**, National University of Singapore May 2004, 1 month, funding: University Scholars Program, Singapore.

**2004**, Physics Department Oxford UK, March 2004, funding: Royal Society.

**2010**, Physics Department Oxford UK, March 2010, funding: Royal Society.

**2011**, Physics Department Liverpool Univ., March 2010, funding: Royal Society .

**2011**, Physics Department Univ. of Granada. Exchange program Lecce-Granada INFN-MEC October 2011.

**2012**, Physics Department Liverpool Univ., October 2012, funding: Royal Society .

**2014**, Intitute for Theoretical Physics Univ. of Madrid, Cantoblanco, October 2014. Ref. Prof. K. Landsteiner.

**2000-2013**, Physics Department, University of Ioannina. Invitation: Profs. K. Tamvakis and G. Leondaris. Regular annual exchange activity for research and student supervision (Dr. Antonio Mariano).

**2015**, University of Southampton, Physics and Mathematics Departments.

**2008-2011**, visitor, Univ. of Zurich, Switzerland.

**2015-2019**, visitor, ETH-Zurich, Switzerland.

**2018**, Visitor, CNRS Tours, collaboration with Prof. M. Chernodub.

## Recent seminars, (short list)

CNRS Tours, France (7/2/2020) Corfu European School and Workshop. Physics beyond the Standard Model (September 2018)  
Corfu European School and Workshop. Physics beyond the Standard Model (September 2019)  
QVAC at Mainz Institute for Particle Physics (2019)  
Univ. of Bologna, Theory group, (2016), (2017), (2018)  
Theory, Univ. of Oxford (2015)  
Physics Dept. U. of Sussex (2015)  
Rutherford Lab (2015)  
Univ. of Jena (2014)

## Appointments in external committees

External member of graduation committee: Universita' della Calabria, Cosenza, invitation: Prof. A. Papa (2017).

External member of graduation committee, University of Tor Vergata (2009) (candidate A. Racioppi), advisor Prof. F. Fucito

External member of graduation committee, University of Tor Vergata (candidate A. Mammarella) advisor Prof. F. Fucito.

External member of graduation committee, University of Tours (candidate Na Nguyen Huu), advisor Prof. Maxim Chernodub (2020).

External member of graduation committee, Technical University of Athens (candidate Fotis Koutroulis), advisor Prof. Nikos Irges (2021).

Committee member, University of Parma, appointment of RTD-A (Dr. A. Feo), 2020.  
Member graduation committee, dottorato di ricerca, University of Catania, July 2021

## Supervision of postdocs

- 1) Marco Guzzi 2006-2008
- 2) Luigi Delle Rose, 2013-2014 (now postdoc at IFAE, Barcelona)
- 3) Antonio Costantini 2016-2017 (now postdoc at Univ. di Bologna)
- 4) Supervisor of a 2-years INFN fellowships for foreigners on "Phenomenology of gauge theory" (2014-2016), INFN cluster QFT-HEP, Lecce. Researcher: Priyotosh Bandyopadhyay, now faculty at IIT Hyderabad, India.

## Ph.D. thesis supervised

- 1) Marco Guzzi (2006) *QCD Studies at hadron Collider and in Deeply Virtual Neutrino Scattering* [link](#)
- 2) Alessandro Cafarella (2006) *QCD at hadron colliders and in Ultra High Energy Cosmic Rays* [link](#)
- 3) Simone Morelli (2009) *Stuckelberg axions and anomalous abelian extensions of the Standard Model* [link](#)

- 4) Roberta Armillis (2011) *Effective actions in theories with gauge and conformal anomalies* [link](#)
- 5) Antonio Mariano (2012) *Dark Matter relic densities in Stuckelberg axion models* [link](#)
- 6) Luigi Delle Rose (2013) *Perturbation Theory in a Weak Gravitational Background: Dilatons, conformal Anomalies and Holographic Non Gaussianities* [link](#)
- 7) Antonio Quintavalle (2013) *Dilaton Interactions and the Anomalous Breaking of Scale Invariance of the Standard Model*
- 8) Mirko Serino (2014) *Conformal Anomaly Actions for Dilaton Interactions* [link](#)
- 9) Carlo Marzo (2016) *A Beyond the Standard Model Journey with the Renormalization Group* [link](#)
- 10) Antonio Costantini (2016) *Studies on conformal and Superconformal Extensions of the Standard Model with an Application to Gravity* [link](#)
- 11) Matteo Maria Maglio (2021) *Conformal Symmetry in Momentum Space and Anomaly Actions in Gravity* [link](#) (Awarded the INFN Sergio Fubini prize for the best thesis in theoretical physics in 2022)
- 12) Alessandro Tatallo (2021) *Axions and Gravitational Waves*

## Supervision of master and doctoral students

- 1) Giovanni Chirilli. Laurea degree at Unisalento. Doctoral studies at Jefferson Lab, Virginia (advisor Jan Balitsky). Currently research fellow at Univ. of Regensburg.
- 2) Emanuela Dimastrogiovanni, laurea degree, graduate studies at U. Texas at Austin. Now at the University of New South Wales (Sidney), Australia.
- 3) Elisa Manno, Laurea degree at Unisalento. Graduate studies at the Univ. of Liverpool, UK.
- 4) Leonardo Carcagnì. Laurea degree at Unisalento (co-advisor Prof. Massimo Inguscio, LENS, Florence). Doctoral studies at Cambridge University.
- 5) Federica Cataldini. Laurea degree at Unisalento (co-advisor Prof. Giovanni Modugno, LENS, Firenze). Doctoral student at the University of Wien.
- 6) Luigi Delle Rose, laurea degree and former Ph.D. student, (moves to the Physics dept., Univ. of Southampton and to Rutherford Laboratory, Oxford, UK. Now postdoc at the Univ. of Florence), formerly "A. Della Riccia" fellow
- 7) Mirko Serino, laurea and doctoral degrees at Unisalento, (postdoc at the Nuclear Institute in Krakow, Poland; postdoc at Ben Gurion University, Israel)
- 8) Carlo Marzo, laurea and doctoral degrees at Unisalento, (currently postdoc at National Institute of Chemical Physics and Biophysics, Tallin Estonia), formerly "A. Della Riccia" fellow.

9) Roberta Armillis, laurea and doctoral degrees at Unisalento. Marie Curie fellow, predoc at the Univ. di Thessaloniki. Former postdoc at EPFL Politechnique, Lausanne, Switzerland.

10) Marco Guzzi, laurea degree and former doctoral student, postdoc at Southern Methodist Univ. at Dallas, then moving to the Univ. di Hamburg, and then Univ. di Manchester. Now assistant professor at Kennesaw STATE Univ., Marietta, Atlanta, Georgia, USA.

11) Alessandro Cafarella, laurea degree and former doctoral student, postdoc at the Univ. of Crete (1 year) and Univ. of Athens (3 years).

12) Antonio Mariano, laurea degree and former doctoral student. Marie Curie fellow at the Univ. di Thessaloniki, then postdoc at Annecy, France.

13) Antonio Costantini, laurea degree and former doctoral student. Now postdoc at the Univ. of Bologna.

14) Matteo Maria Maglio, master and former doctoral student. Now postdoc at GGI Florence.

15) Maria Giovanna Gianfreda, master.

16) Alessandro Tatullo, master and doctoral student.

17) Mario Creti' (2021), master.

18) Riccardo Tommasi (2021), master.

19) Dario Melle (2022), master student.

## Master Thesis (Laurea thesis)

Marco Guzzi, master, *Perturbative QCD and susy QCD*

Andrea Spirito, master, *Anomalies and abelian estensions of the Standard Model*

Giovanni Chirilli, master, *Non forward parton distributions*

Emanuela Dimastrogiovanni, master, *Cosmological models*

Leonardo Carcagni', master, (co-advisor Prof. Massimo Inguscio, LENS, Florence) *A new BEC with tunable interaction*

Roberta Armillis, master, *Neutral Currents and extensions of the Standard Model*

Mariagiovanna Gianfreda, master, *Higgs-Axion mixing in extensions of the Standard Model*

Simone Morelli, Quadriennale, *Supersymmetric extensions of the Standard Model and the Stueckelberg mechanism*

Antonio Mariano, master, *Estensions of the NMSSM (USSM-A)*

Elisa Manno, master, *The next to minimal supersymmetric Standard Model*

Luigi Delle Rose, master, *Studies on conformal and chiral anomalies*

Luigi Manni, master, *Anomaly actions and gravity*

Mirko Serino, master, *Scale breaking and anomaly mediation in the Standard Model*

Federica Cataldini, master, (co-advisor Prof. Giovanni Modugno, LENS, Florence) *One dimensional ultracold superfluids in optical lattices*

Antonio Quintavalle, master, *Trilinear gauge interactions*

Carlo Marzo, master, *Ward identities and dilaton interactions*

Maria Giovanna Gianfreda *The Higgs sector in some extensions of the Standard Model*

Leonardo Carcagni' (Co-advisor Prof. Massimo Inguscio) *Experimental Studies of Bose Einstein Condensate* (at LENS, Florence).

Federica Cataldini (Co-advisor Prof. G Modugno) *One dimensional superfluids in ultracold optical lattices* (at LENS, Florence).

## Publication List

1) Two-point function of the energy-momentum tensor and generalised conformal structure with Luigi Delle Rose and Kostas Skenderis

[link e-Print: 2008.05346 \[hep-th\]](#). Published in: Eur.Phys.J.C 81 (2021) 2, 174

2) Conformal Unification in a Quiver Theory and Gravitational Waves

with Paul H. Frampton and Alessandro Tatullo

Phys. Lett. B 811, 135909

[link e-Print](#)

3) Conformal Field Theory in Momentum Space and Anomaly Actions in Gravity: The Analysis of 3- and 4-Point Functions

with Matteo Maria Maglio, Physics Reports (Elsevier) 2022

[link e-Print: 2005.06873 \[hep-th\]](#)

4) Dark Matter with Light and Ultralight Stückelberg Axions

with Matteo Maria Maglio, Alessandro Tatullo and Dimosthenis Theofilopoulos

Published in: [link PoS CORFU2019 \(2020\) 080](#). Contribution to: CORFU2019, 080 e-Print: 2005.02292 [hep-ph].

5) Four-Point Functions in Momentum Space: Conformal Ward Identities in the Scalar/Tensor case

with Matteo Maria Maglio and Dimosthenis Theofilopoulos [link Published in: Eur.Phys.J.C 80 \(2020\) 6, 540 e-Print: 1912.01907 \[hep-th\]](#)



6) Anomalous Gravitational TTT Vertex, Temperature Inhomogeneity, and Pressure Anisotropy  
with Maxim Chernodub and Matteo Maria Maglio  
[link Phys. Lett. B. 802, \(2020\) 135236](#). arXiv:1910.13727

7) The Generalized Hypergeometric Structure of the Ward Identities of CFT's in Momentum Space in  $d > 2$   
with Matteo Maria Maglio. [link Axioms 9 \(2020\) 2, 54 e-Print: 2001.09622 \[hep-th\]](#)  
arXiv:2001.09622 [hep-th].

8) An axion-like particle from an  $SO(10)$  seesaw with  $U(1)_X$   
with Paul H. Frampton, Alessandro Tatullo and Dimosthenis Theofilopoulos.  
[link Phys.Lett.B 802 \(2020\) 135273 e-Print: 1906.05810 \[hep-ph\]](#)

9) Swampland conjectures and the cosmological expansion  
with Paul H. Frampton  
[link e-Print: 2010.02939 \[hep-th\]](#)

10) Refined Mass Estimate for Bilepton Gauge Boson  
with Paul H. Frampton [link e-Print: 2011.02037 \[hep-ph\]](#)

11) The Conformal Anomaly Action to Fourth Order (4T) in  $d=4$  in Momentum Space  
with Matteo Maglio and D. Theofilopoulos, EPJ C [link e-Print: 2103.13957](#)

12) Einstein Gauss-Bonnet theories as ordinary, Wess-Zumino conformal anomaly actions  
with Matteo Maglio, Phys. Lett. B 828. [link](#)

## ————— Holographic Cosmology

1) From Planck data to Planck era: Observational tests of Holographic Cosmology  
with Niayesh Afshordi, Luigi Delle Rose, Elizabeth Gould, Kostas Skenderis.  
arXiv:1607.04878 [astro-ph.CO]. Phys.Rev.Lett. 118 (2017) no.4, 041301.

2) Three and Four Point Functions of Stress Energy Tensors in  $D=3$  for the Analysis of Cosmological Non-Gaussianities  
with Luigi Delle Rose, Mirko Serino.  
arXiv:1210.0136 [hep-th]. JHEP 1212 (2012) 090.

## ————— Conformal field theory

1) Exact Correlators from conformal Ward Identities in Momentum Space and Perturbative Realizations  
with Matteo Maria Maglio, Alessandro Tatullo, Dimosthenis Theofilopoulos. arXiv:1904.13174 [hep-ph].  
PoS CORFU2018 (2019) 072.

2) On Some Hypergeometric Solutions of the conformal Ward Identities of Scalar 4-point Functions in Momentum Space  
with Matteo Maria Maglio. arXiv:1903.05047 [hep-th]. JHEP 1909 (2019) 107.

3) The general 3-graviton vertex ( $TTT$ ) of conformal field theories in momentum space in  $d = 4$   
with Matteo Maria Maglio. arXiv:1808.10221 [hep-th]. Nucl.Phys. B937 (2018) 56-134.

- 4) Exact Correlators from conformal Ward Identities in Momentum Space and the Perturbative  $TJJ$  Vertex  
with Matteo Maria Maglio. arXiv:1802.07675 [hep-th]. Nucl.Phys. B938 (2019) 440-522.
- 5) TTT in CFT: Trace Identities and the conformal Anomaly Effective Action  
with Matteo Maria Maglio, Emil Mottola. arXiv:1703.08860 [hep-th]. Nucl.Phys. B942 (2019) 303-328.
- 6) Superconformal sum rules and the spectral density flow of the composite dilaton (ADD) multiplet in  $\mathcal{N} = 1$  theories  
with Antonio Costantini, Luigi Delle Rose, Mirko Serino. arXiv:1402.6369 [hep-th]. JHEP 1406 (2014) 136.
- 7) The dilaton Wess-Zumino action in six dimensions from Weyl gauging: local anomalies and trace relations  
with Luigi Delle Rose, Carlo Marzo, Mirko Serino. arXiv:1311.1804 [hep-th]. Class.Quant.Grav. 31 (2014) 105009.
- 8) Conformal Trace Relations from the Dilaton Wess-Zumino Action  
with Luigi Delle Rose, Carlo Marzo, Mirko Serino. arXiv:1306.4248 [hep-th]. Phys.Lett. B726 (2013) no.4-5, 896-905.
- 9) Solving the conformal constraints for Scalar Operators in Momentum Space and the Evaluation of Feynman's Master Integrals  
with Luigi Delle Rose, Emil Mottola, Mirko Serino. arXiv:1304.6944 [hep-th]. JHEP 1307 (2013) 011.
- 10) Graviton Vertices and the Mapping of Anomalous Correlators to Momentum Space for a General Conformal Field Theory  
with Luigi Delle Rose, Emil Mottola, Mirko Serino. arXiv:1203.1339 [hep-th]. JHEP 1208 (2012) 147.
- 11) Anomaly Poles as Common Signatures of Chiral and Conformal Anomalies  
with Roberta Armillis, Luigi Delle Rose.  
arXiv:0909.4522 [hep-ph]. Phys.Lett. B682 (2009) 322-327.
- 12) Renormalization, formal Ward Identities and the Origin of a conformal Anomaly Pole  
with Matteo Maria Maglio.  
arXiv:1802.01501 [hep-th]. Phys.Lett. B781 (2018) 283-289.
- 13) conformal Anomalies and the Gravitational Effective Action: The TJJ Correlator for a Dirac Fermion  
with Roberta Armillis, Luigi Delle Rose.  
arXiv:0910.3381 [hep-ph]. Phys.Rev. D81 (2010) 085001.
- 14) Trace Anomaly, Massless Scalars and the Gravitational Coupling of QCD  
with Roberta Armillis, Luigi Delle Rose.  
arXiv:1005.4173 [hep-ph]. Phys.Rev. D82 (2010) 064023.
- 15) Comments on Anomaly Cancellations by Pole Subtractions and Ghost Instabilities with Gravity  
with Roberta Armillis, Luigi Delle Rose, A.R. Fazio.  
arXiv:1103.1590 [hep-ph]. Class.Quant.Grav. 28 (2011) 145004.

16) Anomalous U(1) Models in Four and Five Dimensions and their Anomaly Poles  
with Roberta Armillis, Luigi Delle Rose, Marco Guzzi.  
arXiv:0905.0865 [hep-ph]. JHEP 0912 (2009) 029.

17) Conformal field theory in momentum space and anomaly actions in gravity: The analysis of three- and four-point function  
Phys. Rept. 952 (2022) 1-95

## Physics beyond the Standard Model

1) Possible Bilepton Resonances in Like-Sign Pairs  
with Paul H. Frampton.  
arXiv:1812.02723 [hep-ph]. Mod.Phys.Lett. A34 (2019) no.10, 1950076.

2) Bilepton Signatures at the LHC  
with Gennaro Corcella, Antonio Costantini, Paul H. Frampton.  
arXiv:1707.01381 [hep-ph].  
Phys.Lett. B773 (2017) 544-552.

3) Exploring Scalar and Vector Bileptons at the LHC in a 331 Model  
with Gennaro Corcella, Antonio Costantini, Paul H. Frampton.  
arXiv:1806.04536 [hep-ph]. Phys.Lett. B785 (2018) 73-83.

4) Extra Quarks and Bileptons in BSM Physics in a 331 Model  
with Antonio Costantini.  
arXiv:1809.05051 [hep-ph]. EPJ Web conf. 192 (2018) 00034.

5) Search for Z prime, vacuum (in)stability and hints of high-energy structures  
with Elena Accomando, Luigi Delle Rose, Juri Fiaschi, Carlo Marzo, Stefano Moretti.  
arXiv:1609.05652 [hep-ph]. EPJ Web conf. 129 (2016) 00007.

6) Bounds on the conformal Scale of a Minimally Coupled Dilaton and Multi-Leptonic Signatures at the LHC  
with Priyotosh Bandyopadhyay, Antonio Costantini, Luigi Delle Rose.  
arXiv:1607.01933 [hep-ph]. JHEP 1609 (2016) 084.

7) Z prime, Higgses and heavy neutrinos in U(1) models: from the LHC to the GUT scale  
with Elena Accomando, Luigi Delle Rose, Juri Fiaschi, Carlo Marzo, Stefano Moretti.  
arXiv:1605.02910 [hep-ph]. JHEP 1607 (2016) 086.

8) An Anomalous Extra Z Prime from Intersecting Branes with Drell-Yan and Direct Photons at the LHC  
with Roberta Armillis, Marco Guzzi, Simone Morelli.  
arXiv:0809.3772 [hep-ph]. Nucl.Phys. B814 (2009) 156-179.

9) Axions from Intersecting Branes and Decoupled Chiral Fermions at the Large Hadron Collider  
with Marco Guzzi.  
arXiv:0905.4462 [hep-ph]. Nucl.Phys. B826 (2010) 87-147.

10) Higgs bosons: discovered and hidden, in extended Supersymmetric Standard Models at the LHC

with Priyotosh Bandyopadhyay, Antonio Costantini.  
arXiv:1604.00228 [hep-ph]. PoS CORFU2015 (2016) 069.

11) General analysis of the charged Higgs sector of the  $Y = 0$  triplet-singlet extension of the MSSM at the LHC

with Priyotosh Bandyopadhyay, Antonio Costantini.  
arXiv:1512.08651 [hep-ph]. Phys.Rev. D94 (2016) no.5, 055030.

12) Probing the hidden Higgs bosons of the  $Y = 0$  triplet- and singlet-extended Supersymmetric Standard Model at the LHC

with Priyotosh Bandyopadhyay, Antonio Costantini.  
arXiv:1510.06309 [hep-ph]. JHEP 1512 (2015) 127.

13) Constraints on abelian extensions of the Standard Model from two-loop vacuum stability and  $U(1)_{B-L}$

with Luigi Delle Rose, Carlo Marzo.  
arXiv:1510.02379 [hep-ph].  
JHEP 1602 (2016) 135.

14) Perspectives on a supersymmetric extension of the standard model with a  $Y = 0$  Higgs triplet and a singlet at the LHC

with Priyotosh Bandyopadhyay, Antonio Costantini.  
arXiv:1506.03634 [hep-ph]. JHEP 1509 (2015) 045.

15) Stability constraints of the scalar potential in extensions of the Standard Model with TeV scale right handed neutrinos

with Luigi Delle Rose, Carlo Marzo.  
arXiv:1411.7168 [hep-ph]. Nucl.Part.Phys.Proc. 265-266 (2015) 311-313.

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