

UNIVERSITÀ DEGLI STUDI DI MILANO

Procedura di selezione per la chiamata a professore di II fascia da ricoprire ai sensi dell'art. 18, commi 1 e 4, della Legge n. 240/2010 per il settore concorsuale 02/A2 - Fisica Teorica delle Interazioni Fondamentali, (settore scientifico-disciplinare FIS/02 - Fisica Teorica Modelli e Metodi Matematici) presso il Dipartimento di Dipartimento di FISICA "ALDO PONTREMOLI", (avviso bando pubblicato sulla G.U. n. 68 del 01/09/2020) - Codice concorso 4415

# CURRICULUM VITAE

LUCA DI LUZIO

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## INFORMAZIONI PERSONALI

Cognome	Di Luzio
Nome	Luca
Data di nascita	23/02/1983

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## CONTATTI

Indirizzo	Deutsches Elektronen-Synchrotron DESY, Notkestraße 85, D-22607 Hamburg, Germany
Emails	luca.diluzio@desy.de, lukaluz@gmail.com
Website	<a href="https://lucadiluziophysics.com">https://lucadiluziophysics.com</a>

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## POSIZIONI PROFESSIONALI

11/2019–	Marie Skłodowska-Curie Fellow, DESY, Hamburg
10/2018–10/2019	Assegnista di ricerca, Università di Pisa
10/2016–09/2018	Ricercatore associato, IPPP, Durham University
10/2014–09/2016	Assegnista di ricerca, Università di Genova
10/2011–09/2014	Ricercatore associato, Karlsruhe Institute of Technology

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## EDUCAZIONE SCIENTIFICA

26/09/2011	Ph.D. in Teoria delle Particelle Elementari, SISSA, Trieste Titolo della tesi: <i>Aspects of Symmetry Breaking in Grand Unified Theories</i> Relatore: Dr. Stefano Bertolini
28/09/2007	Laurea Specialistica in Fisica, Università di Roma "La Sapienza" Titolo della tesi: <i>Pendenza e curvature dei fattori di forma del decadimento <math>K_{\ell 3}</math> nella QCD su reticolo</i> Relatori: Prof. Guido Martinelli, Prof. Gino Isidori, Prof. Federico Mescia Voto: 110/110 <i>cum laude</i>
05/10/2005	Laurea Triennale in Fisica, Università dell'Aquila Titolo della tesi: <i>Relatività generale e manifestazioni fisiche della curvatura dello spazio</i> Supervisor: Prof. Zurab Berezhiani Grade: 110/110 <i>cum laude</i>

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## QUALIFICHE PROFESSIONALI

13/07/2018	Abilitazione scientifica nazionale per professore di II fascia (settore concorsuale 02/A2, fisica teorica delle interazioni fondamentali). Valida fino al 13/07/2024
29/12/2016	Idoneo non vincitore del concorso INFN 18226/2016 per ricercatore di III livello per attività di ricerca nel campo della fisica teorica delle interazioni fondamentali

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## PROGETTI DI RICERCA PERSONALI

02/2019	Vincitore di una ‘Marie Skłodowska-Curie Individual Fellowship’ nel contesto del programma dell’Unione Europea H2020-MSCA-IF-2018. Host: DESY, Hamburg. Riferimento: AXIONRUSH 840791. Finanziamento: 173 kEUR. Durata: 2 anni
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## INTERESSI DI RICERCA

Aspetti teorici e fenomenologici delle interazioni fondamentali, con focus sulla fisica oltre il modello standard. In particolare:

- Axions: theory, phenomenology and case for future experiments
- Flavour physics: precision tests of the Standard Model, B-anomalies
- Higgs physics: Higgs self-coupling and effective potential, composite Higgs
- Grand unified theories
- Non-perturbative aspects of QFT (e.g. vacuum decay and strong CP)
- Particle cosmology: dark matter, topological defects, inflation

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## RIASSUNTO DELL’ATTIVITÀ SCIENTIFICA

- Autore di 54 pubblicazioni, di cui 38 pubblicate su riviste “peer reviewed” [*lista completa delle pubblicazioni a seguire*]
- Dati bibliometrici dal database di inSPIRE: numero di citazioni (published only): 1376; h-index: 20
- 87 interventi come relatore presso conferenze/workshops ed università/centri di ricerca, di cui 63 come “invited speaker” [*lista completa degli interventi a seguire*]

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## PREMI E RICONOSCIMENTI

- L’articolo “*Redefining the Axion Window*, by L. Di Luzio, F. Mescia, and E. Nardi [Phys. Rev. Lett. 118, 031801 (2017)]” è stato selezionato come “Physical Review Letters Editors’ Suggestion” per le seguenti motivazioni: “due to its particular importance, innovation, and broad appeal”
- Certificato di “outstanding contribution in reviewing, in recognition of the contributions made to the quality of the journal” da parte della rivista Physics Letters B (2017)

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## ATTIVITÀ DIDATTICA

2018	Ciclo di lezioni su “Axions and the strong CP problem” per studenti di dottorato, Durham University
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2018	Tutor per la scuola di dottorato “GGI lectures on the theory of fundamental interactions 2018”, Arcetri, Firenze (08-26/01/2018) [ <a href="http://webtheory.sns.it/ggilectures2018/">http://webtheory.sns.it/ggilectures2018/</a> ]
2017/2018	Assistente per il corso “Foundations of Physics 1”, Durham University
2016/2017	Assistente per il corso “Foundations of Physics 1”, Durham University
2016	Esercitazioni per il corso di Fisica (Fis, cod. 72718) nell’ambito del corso di Laurea in Scienze Ambientali e Naturali, presso l’Università di Genova (12 ore)
2013	Assistente per il corso “Computational Physics”, Karlsruhe Institute of Technology
2012	Assistente per il corso “Computational Physics”, Karlsruhe Institute of Technology

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## ATTIVITÀ DI SUPERVISIONE

- Relatore di tesi Magistrale
  - Gioacchino Piazza [Università Sapienza di Roma, 09/2020. Titolo della tesi: “Next-to-leading order axion-pion Lagrangian and the Hot Dark Matter bound”. Data della discussione: 28/09/2020]
  - Federica Devoto [Università di Genova, 09/2020. Titolo della tesi: “Quantum tunnelling in field theory and its application to the Standard Model of electroweak interactions”. Data della discussione: 23/09/2020]
  - Simone Devoto [Università di Genova, 09/2016. Titolo della tesi: “On the metastability of the Universe ground state in the standard model and its extensions”. Voto: 110/110 “cum laude”]
- Supervisore del “Summer project for level 3 students” di Victor Juan Forouhar Moreno, Durham University, 07/2018. Titolo del progetto: “Introduction to Grand Unified Theories”

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## ALTRE ATTIVITÀ SCIENTIFICHE ED ORGANIZZATIVE

- Membro del gruppo di lavoro “The landscape of QCD axion models”, presso l’Aspen Center for Physics (Summer 2019) per la stesura di un Physics Reports sulla fisica degli assioni, arXiv:2003.01100 [hep-ph]
- Membro del gruppo di lavoro “Higgs Boson Pair Production at Colliders: Status and Perspectives” (2019), in collaborazione con il “LHC Higgs Cross Section Working Group”, arXiv:1910.00012 [hep-ph]
- Membro del gruppo di lavoro del “Compact Linear Collider (CLIC) Physics Potential” (2018). Yellow report disponibile su <http://cds.cern.ch/record/2650541>
- Revisore per le seguenti riviste scientifiche di fisica delle alte energie: European Physical Journal C, Physical Review D, Physical Review Letters, Physics Letters B and Journal of High Energy Physics.
- Partecipazione all’evento di divulgazione scientifica “Modelling the Invisible” presso la “Royal Society Summer Science Exhibition, London”, 07/2017  
[<https://royalsociety.org/science-events-and-lectures/2017/summer-science-exhibition/exhibits/modelling-the-invisible/>]
- Coordinatore della sessione “Frontiera Intensità” per la conferenza IFAE 2016 presso l’Università di Genova (30/03/2016-01/04/2016)  
[<https://agenda.infn.it/internalPage.py?pageId=7&confId=10129>]
- Organizzatore dei seminari di “Fenomenologia” presso l’Università di Genova (2015/2016)
- Organizzazione, coordinamento e direzione dell’attività “Formazione alla ricerca scientifica, PLS 2015 e PLS 2016” per lo stage di “Fisica Moderna” indirizzato a studenti delle scuole medie superiori presso il dipartimento di Fisica dell’Università di Genova, 02/2015 e 01/2016

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## PUBBLICAZIONI

*Pubblicazioni in riviste “peer reviewed”*

1. L. Di Luzio, M. Fedele, M. Giannotti, F. Mescia and E. Nardi,  
*Solar axions cannot explain the XENON1T excess*,  
arXiv:2006.12487 [hep-ph]  
Accepted for publication in Phys. Rev. Lett.
2. L. Di Luzio,  
*Pati-Salam Axion*,  
JHEP 07 (2020) 071
3. L. Di Luzio, M. Giannotti, E. Nardi, L. Visinelli,  
*The Landscape of QCD Axion Models*,  
Phys. Rept. 870 (2020) 1-117
4. F. Björkeröth, L. Di Luzio, F. Mescia, E. Nardi, P. Panci and R. Ziegler,  
*Axion-electron decoupling in nucleophobic axion models*,  
Phys. Rev. D 101, no. 3, 035027 (2020)
5. F. Björkeröth, L. Di Luzio, F. Mescia and E. Nardi,  
*Covert symmetries in the neutrino mass matrix*,  
JHEP 02 (2020) 066
6. D. Buttazzo, L. Di Luzio, P. Ghorbani, C. Gross, G. Landini, A. Strumia, D. Teresi and J. W. Wang,  
*Scalar gauge dynamics and Dark Matter*,  
JHEP 2001 (2020) 130
7. L. Di Luzio, M. Kirk, A. Lenz and T. Rauh,  
 $\Delta M_s$  theory precision confronts flavour anomalies,  
JHEP 1912 (2019) 009
8. D. Buttazzo, L. Di Luzio, G. Landini, A. Strumia and D. Teresi,  
*Dark Matter from self-dual gauge/Higgs dynamics*,  
JHEP 1910 (2019) 067
9. L. Di Luzio, M. Redi, A. Strumia and D. Teresi,  
*Coset Cosmology*,  
JHEP 1906 (2019) 110
10. F. Björkeröth, L. Di Luzio, F. Mescia, E. Nardi,  
 *$U(1)$  flavour symmetries as Peccei-Quinn symmetries*,  
JHEP 1902 (2019) 133
11. L. Di Luzio, R. Gröber, G. Panico,  
*Probing new electroweak states via precision measurements at the LHC and future colliders*,  
JHEP 1901 (2019) 011
12. L. Di Luzio, J. Fuentes-Martin, A. Greljo, M. Nardecchia, S. Renner,  
*Maximal Flavour Violation: a Cabibbo mechanism for leptoquarks*,  
JHEP 1811 081 (2018)
13. L. Di Luzio, A. Ringwald and C. Tamarit,  
*Axion mass prediction from minimal grand unification*,  
Phys. Rev. D 98, no. 9, 095011 (2018)
14. L. Di Luzio, F. Mescia, E. Nardi, P. Panci and R. Ziegler,  
*Astrophobic Axions*,  
Phys. Rev. Lett. 120 no. 26, 261803 (2018)
15. L. Di Luzio, M. Kirk and A. Lenz,  
*Updated  $B_s$ -mixing constraints on new physics models for  $b \rightarrow s\ell^+\ell^-$  anomalies*,  
Phys. Rev. D97 no. 9, 095035 (2018)

16. L. Di Luzio, A. Greljo, M. Nardecchia,  
*Gauge leptoquark as the origin of B-physics anomalies*,  
Phys. Rev. D96 no. 11, 115011 (2017)
17. L. Di Luzio, R. Gröber and M. Spannowsky,  
*Maxi-sizing the trilinear Higgs self-coupling: how large could it be?*,  
Eur. Phys. J. C77 no. 11, 788 (2017)
18. L. Di Luzio, F. Mescia and E. Nardi,  
*Window for preferred axion models*,  
Phys. Rev. D96 no. 7, 075003 (2017)
19. L. Di Luzio and M. Nardecchia,  
*What is the scale of new physics behind the B-flavour anomalies?*,  
Eur. Phys. J. C 77, no. 8, 536 (2017)
20. L. Di Luzio, E. Nardi and L. Ubaldi,  
*Accidental Peccei-Quinn symmetry protected to arbitrary order*,  
Phys. Rev. Lett. 119, no. 1, 011801 (2017)
21. L. Di Luzio, F. Mescia, E. Nardi,  
*Redefining the Axion Window*,  
Phys. Rev. Lett. 118, no. 3, 031801 (2017)
22. L. Di Luzio, J. F. Kamenik, M. Nardecchia,  
*Implications of perturbative unitarity for scalar di-boson resonance searches at LHC*,  
Eur. Phys. J. C77 no. 1, 30 (2017)
23. C. Biggio, M. Bordone, L. Di Luzio and G. Ridolfi,  
*Massive vectors and loop observables: the  $g - 2$  case*,  
JHEP 10 002 (2016)
24. S. Bertolini, L. Di Luzio, H. Kolesova, M. Malinsky, J. C. Vasquez,  
*Neutrino-axion-dilaton interconnection*,  
Phys. Rev. D93, 1, 015009 (2016)
25. L. Di Luzio, G. Isidori, G. Ridolfi,  
*Stability of the electroweak ground state in the Standard Model and its extensions*,  
Phys. Lett. B753, 150-160 (2016)
26. L. Di Luzio, R. Gröber, J. F. Kamenik, M. Nardecchia,  
*Accidental matter at the LHC*,  
JHEP 1507 074 (2015)
27. B. Bajc, L. Di Luzio,  
*R-parity violation in  $SU(5)$* ,  
JHEP 1507 123 (2015)
28. S. Bertolini, L. Di Luzio, H. Kolesova, M. Malinsky,  
*Massive neutrinos and invisible axion minimally connected*,  
Phys. Rev. D91, 055014 (2015)
29. L. Di Luzio, L. Mihaila,  
*On the gauge dependence of the Standard Model vacuum instability scale*,  
JHEP 1406 079 (2014)
30. L. Di Luzio, M. Nardecchia and A. Romanino,  
*Framework for baryonic R-parity violation in grand unified theories*,  
Phys. Rev. D88, 115008 (2013)
31. L. Di Luzio, L. Mihaila,  
*Unification scale vs. electroweak-triplet mass in the  $SU(5) + 24_F$  model at 3 loops*,  
Phys. Rev. D87, 115025 (2013).

32. S. Bertolini, L. Di Luzio, M. Malinsky,  
*Light color octet scalars in the minimal  $SO(10)$  grand unification*,  
Phys. Rev. D87, 085020 (2013)
33. S. Bertolini, L. Di Luzio, M. Malinsky,  
*Seesaw Scale in the Minimal Renormalizable  $SO(10)$  Grand Unification*,  
Phys. Rev. D85, 095014 (2012)
34. G. Arcadi, L. Di Luzio, M. Nardecchia,  
*Minimal Flavour Violation and Neutrino Masses without  $R$ -parity*,  
JHEP 1205 048 (2012)
35. G. Arcadi, L. Di Luzio, M. Nardecchia,  
*Gravitino Dark Matter in Tree Level Gauge Mediation with and without  $R$ -parity*,  
JHEP 1112 040 (2011)
36. S. Bertolini, L. Di Luzio, M. Malinsky,  
*Minimal Flipped  $SO(10) \otimes U(1)$  Supersymmetric Higgs model*,  
Phys. Rev. D83, 035002 (2011)
37. S. Bertolini, L. Di Luzio, M. Malinsky,  
*On the vacuum of the minimal nonsupersymmetric  $SO(10)$  unification*,  
Phys. Rev. D81, 035015 (2010)
38. S. Bertolini, L. Di Luzio, M. Malinsky,  
*Intermediate mass scales in the non-supersymmetric  $SO(10)$  grand unification: A Reappraisal*,  
Phys. Rev. D80, 015013 (2009)

*Articoli in fase di referaggio:*

39. L. Di Luzio  
*Accidental  $SO(10)$  axion from gauged flavour*,  
arXiv:2008.09119 [hep-ph]  
Submitted to JHEP
40. M. Ardu, L. Di Luzio, G. Landini, A. Strumia, D. Teresi and J. W. Wang  
*Axion quality from the (anti)symmetric of  $SU(N)$* ,  
arXiv:2007.12663 [hep-ph]  
Submitted to JHEP
41. S. Bertolini, L. Di Luzio, F. Nesti  
*Axion-mediated forces and  $CP$  violation in left-right models*,  
arXiv:2006.12508 [hep-ph]  
Submitted to Phys. Rev. Lett

*Proceedings:*

42. L. Di Luzio,  
*Flavour Violating Axions*,  
EPJ Web Conf. 234 (2020) 01005
43. L. Di Luzio, M. Kirk and A. Lenz,  
 *$B_s$ - $\bar{B}_s$  mixing interplay with  $B$  anomalies*,  
Proceedings of the 10th International Workshop on the CKM Unitarity Triangle (CKM 2018).  
arXiv:1811.11860 [hep-ph]
44. A. Ernst, L. Di Luzio, A. Ringwald, C. Tamarit,  
*Axion properties in GUTs*,  
Proceedings of the Corfu Summer Institute 2018  
arXiv:1811.11860 [hep-ph], PoS CORFU2018 (2019) 054
45. L. Di Luzio, J. F. Kamenik, M. Nardecchia,  
*Perturbative unitarity bounds on di-boson scalar resonances*,  
EPJ Web Conf. 164 07026 (2017)

46. L. Di Luzio, R. Gröber, J. F. Kamenik, M. Nardecchia,  
*Accidentally safe extensions of the Standard Model*,  
Proceedings of the 27th Rencontres the Blois. arXiv:1509.00367 [hep-ph]
47. S. Bertolini, L. Di Luzio, M. Malinsky,  
*Structure and prospects of the simplest  $SO(10)$  GUTs*,  
AIP Conf. Proc. 1534, 293 (2012)
48. S. Bertolini, L. Di Luzio, M. Malinsky,  
*Towards a New Minimal  $SO(10)$  Unification*,  
AIP Conf. Proc. 1467, 37 (2012)
49. L. Di Luzio,  
*Aspects of symmetry breaking in  $SO(10)$  GUTs*,  
J. Phys. Conf. Ser. 335, 012025 (2011)
50. L. Di Luzio,  
*Recent developments in nonsupersymmetric  $SO(10)$  unification*,  
Nuovo Cim. C33 257-258 (2010)
51. S. Bertolini, L. Di Luzio, M. Malinsky,  
*The quantum vacuum of the minimal  $SO(10)$  GUT*,  
J. Phys. Conf. Ser. 259 012098 (2010)

*CERN Yellow Reports ed altri gruppi di lavoro:*

52. B. Di Micco *et al.*,  
*Higgs Boson Pair Production at Colliders: Status and Perspectives*,  
arXiv:1910.00012 [hep-ph], to appear in Reviews in Physics (2020)
53. J. de Blas *et al.*,  
*The CLIC Potential for New Physics*,  
arXiv:1812.02093 [hep-ph], CERN Yellow Rep. Monogr. Vol. 3 (2018)

*Tesi di dottorato:*

54. L. Di Luzio,  
*Aspects of Symmetry Breaking in Grand Unified Theories*,  
pubblicata in “SISSA Digital Library”, arXiv:1110.3210 [hep-ph]

## INTERVENTI COME RELATORE A CONFERENZE E SEMINARI

1. *Pati Salam Axion*,  
Invited talk at the TH BSM Forum, CERN [via Zoom] (28 May, 2020)
2. *Pati Salam Axion*,  
DESY Theory Journal Club, DESY [via Zoom] (25 Jun, 2020)
3. *Pati Salam Axion*,  
Invited talk at the JSI high-energy physics seminar, Ljubiana [via Zoom] (21 May, 2020)
4. *Pati Salam Axion*,  
Invited talk at the Pheno Coffee Seminar, Padova University [via Zoom] (12 May, 2020)
5. *Theoretical aspects of Axion physics*,  
Invited talk at the meeting “Axions: Experimental, Cosmological and Theoretical Aspects”, Padova University (14 Feb, 2020)
6. *The landscape of QCD Axion models*,  
Invited talk at the Joint INFN-UNIMI-UNIMIB Pheno Seminar, Milano University (11 Dec, 2019)
7. *AXIONRUSH*,  
DESY Fellows Meeting, DESY (03 Dec, 2019)

8. *Rethinking the QCD axion*,  
Invited High-energy theory seminar, Padova University (27 Nov, 2019)
9. *Axions and Flavour*,  
Invited talk at “Flavour changing and conserving processes 2019”, Capri (31 Aug, 2019)
10. *Rethinking the QCD axion*,  
Invited seminar talk at University of Siegen (24 Jun, 2019)
11. *Rethinking the QCD axion*,  
Invited seminar talk at the “Laboratori Nazionali del Gran Sasso”, INFN (20 Jun, 2019)
12. *Nambu-Goldstone bosons in Cosmology*,  
Invited talk at the “Spring Institute 2019: Axions, Nambu-Goldstone Bosons, Vector Bosons in the Dark”, Laboratori Nazionali di Frascati (22 May, 2019)  
[<https://agenda.infn.it/event/19200/>]
13. *Cosmosettology (about trigonometric potentials and their consequences in cosmology)*,  
Invited talk at “Portoroz 2017”, Portoroz (18 Apr, 2019)  
[<https://indico.cern.ch/event/737360/>]
14. *New frontiers in the Axion Hunt*,  
Invited talk at “IFAE 2019”, Napoli (09 Apr, 2019)  
[<https://agenda.infn.it/event/17945/overview>]
15. *Two pathways beyond the Standard Model*,  
Interview talk at the CNRS, Paris (29 Mar, 2019)
16. *Rethinking the QCD axion*,  
Invited seminar talk at the “Laboratoire Charles Coulomb” Montpellier (21 Mar, 2019)
17. *Rethinking the QCD axion*,  
Invited seminar talk at the University of Genoa (12 Mar, 2019)
18. *UV aspects of B-anomalies*,  
Invited seminar talk at the 3PAC, Imperial College, London (25 Jan, 2019)
19. *Accidental Dark Matter*,  
Invited talk at the “CLIC Workshop 2019”, CERN (24 Jan, 2019)  
[<https://indico.cern.ch/event/753671/>]
20. *Rethinking the QCD axion*,  
Seminar talk at the University of Pisa (13 Dec, 2018)
21. *Rethinking the QCD axion*,  
Invited seminar talk at the Max Planck Institute, Heidelberg (3 Dec, 2018)
22. *Models for B-anomalies*,  
Invited talk at the “UK HEP Forum – The Spice of Flavour”, Abington (27 Nov, 2018)  
[<https://conference.ippp.dur.ac.uk/event/728/overview>]
23. *Rethinking the QCD axion*,  
Invited seminar talk at the Humboldt University, Berlin (15 Nov, 2018)
24. *4321 (or on how to make sense of the vector leptoquark solution of the B-anomalies)*,  
Invited talk at the “Workshop on high-energy implications of flavor anomalies”, CERN (23 Oct, 2018)  
[<https://indico.cern.ch/event/701759/>]
25. *Rethinking the QCD axion*,  
Invited seminar talk at the University of Torino (16 Oct, 2018)
26. *Review of recent advances in axion models*,  
Invited talk at the “8th General IAXO Collaboration Meeting”, CERN (19 Sep, 2018)



27.  *$\Delta M_s$  interplay with  $B$ -anomalies*,  
Invited talk at the “10th International Workshop on the CKM Unitarity Triangle”, Heidelberg (18 Sep, 2018)  
[<https://ckm2018.physi.uni-heidelberg.de>]
28. *Axion couplings in non-standard axion models*,  
Invited talk at the “Invisibles18 Workshop”, Karlsruhe (05 Sep, 2018)  
[<https://indico.scc.kit.edu/event/357/>]
29. *Discussion on Flavour Universality*,  
Invited talk at the GGI Workshop “Beyond the Standard Model: where do we go from here?”, Arcetri, Italy (Aug 24, 2018)  
[<https://www.ggi.infn.it/showevent.pl?id=270>]
30. *Astrophobic Axions*,  
Invited talk at the “Dark Matter UK Meeting”, Durham (Jul 13, 2018)  
[<https://conference.ippp.dur.ac.uk/event/692/>]
31. *From 321 to 4321: a Cabibbo mechanism for leptoquarks*,  
Invited talk at the “Summer Institute on Flavour Physics”, Frascati National Labs (Jun 27, 2018)  
[<https://agenda.infn.it/conferenceDisplay.py?confId=15950>]
32. *The scale of new physics*,  
Seminar talk at Durham University, (Jun 22, 2018)
33. *The Axion Rush*,  
Invited seminar talk at the University of Naples, (Jun 15, 2018)
34. *Axion-photon coupling: models vs. experiments*,  
Invited talk at “The strong CP puzzle and axions workshop”, Grenoble, LPSC (May 15, 2018)  
[<https://indico.cern.ch/event/703481/>]
35. *Gauge leptoquark and  $B$ -anomalies*,  
Invited talk at the LIO International conference “From Flavour to New Physics”, Lyon, IPNL (Apr 18, 2018)  
[<https://indico.in2p3.fr/event/16793/>]
36. *Axion couplings beyond standard scenarios*,  
Invited seminar talk at the Particle Theory Group, University of Nottingham (Apr 6, 2018)
37. *4321 gauge model for  $B$ -anomalies*,  
Invited talk at the “CrossTalk Workshop: Flavour anomalies”, Vrije Universiteit Brussel (Mar 29, 2018)  
<http://indico.ihe.ac.be/indico/conferenceDisplay.py?confId=1160>
38. *UV aspects of  $B$ -physics anomalies*,  
Invited talk at the “1st Joint Rome Seminar” meeting, Sapienza University, Rome (Dec 21, 2017)  
[<https://agenda.infn.it/conferenceDisplay.py?confId=14736>]
39. *Discussion session on  $B$ -anomalies*,  
Invited talk at the “Out of the Higgs era into the Dark” Workshop, IPPP Durham (Nov 21, 2017)  
[<http://conference.ippp.dur.ac.uk/event/627/>]
40. *Redefining the Axion Window*,  
Invited seminar talk at the IFT, Madrid (Nov 11, 2017)
41. *Axions beyond DFSZ/KSVZ*,  
Invited talk at the “Flavour and Dark Matter” Workshop, Heidelberg University (Sep 26, 2017)  
[<https://indico.cern.ch/event/653347/>]
42. *Axions beyond DFSZ/KSVZ*,  
Invited seminar talk at the IFAE, Barcelona (Sep 22, 2017)

43. *Axion models beyond minimal scenarios*,  
Invited seminar talk at the ICCUB, University of Barcelona (Sep 18, 2017)
44. *Accidental Matter*,  
Invited talk at the “Physics at CLIC” Workshop, CERN (Jul 17, 2017)  
[<https://indico.cern.ch/event/632228/>]
45. *Redefining the Axion Window*,  
Theoretical BSM Forum, CERN (Jun 15, 2017)
46. *Redefining the Axion Window*,  
Invited talk at the “Portoroz 2017” Workshop, Portoroz (Apr 18, 2017)  
[<https://indico.cern.ch/event/580860/>]
47. *The dirty side of the axion*,  
Invited talk at the “Experimental/Theory Meeting on Searches for Light Elusive Particle”, Frascati National Labs (Feb 15, 2017)
48. *A phenomenological definition of the axion window*,  
Internal Particle Physics Colloquium, Durham University (Nov 18, 2016)
49. *Looking through the axion window*,  
Invited Particle Physics Colloquium at the KIT, Karlsruhe (Oct 20, 2016)
50. *Perturbative Unitarity and the LHC di-photon excess*,  
Invited parallel talk at the “ICNFP 2016 conference”, Crete (Jul 13, 2016)  
[<https://indico.cern.ch/event/442094/>]
51. *Implications of unitarity for the  $\gamma\gamma$  resonance at 750 GeV*,  
Invited seminar talk at Frascati National Labs (May 25, 2016)
52. *Implications of unitarity for the di-photon excess*,  
Parallel talk at the “Pheno 2016” Conference, University of Pittsburgh (May 10, 2016)  
[<https://indico.cern.ch/event/489180/>]
53. *Few remarks on the SM vacuum decay rate*,  
Invited seminar talk at the University of Roma Tre (Jan 20, 2016)
54. *An extended scalar sector for the known physics beyond the SM*,  
Parallel talk at the “Scalars 2015” Conference, Warsaw (Dec 7, 2015)  
[<http://scalars2015.fuw.edu.pl>]
55. *On the UV sensitivity of the SM vacuum decay rate*,  
Invited seminar talk at LPT Orsay, Paris (Sep 24, 2015)
56. *Accidental matter at the LHC*,  
Invited seminar talk at Frascati National Labs (Jul 24, 2015)
57. *Accidental matter at the LHC*,  
Parallel talk at the “27th Rencontres de Blois” (Jun 2, 2015)  
[<http://blois.in2p3.fr/2015/>]
58. *Invisible axion and massive neutrinos: are they related?*,  
Invited seminar talk at the ICCUB, University of Barcelona (Apr 30, 2015)
59. *Accidental matter at the LHC*,  
Invited seminar talk at the IFAE, Barcelona (Apr 28, 2015)
60. *Accidental matter at the LHC*,  
Invited seminar talk at SISSA, Trieste (Apr 14, 2015)
61. *Massive neutrinos and invisible axions minimally connected*,  
Invited talk at the “Portoroz’15” Workshop, Portoroz (Apr 9, 2015)  
[<https://indico.cern.ch/event/343324/>]

62. *Gauge artifacts and vacuum (in)stability*,  
Seminar talk at the University of Genoa (Feb 12, 2015)
63. *Gauge artifacts & vacuum stability*,  
Invited seminar talk at the Jozef Stefan Institute, Ljubljana (Oct 23, 2014)
64. *On the gauge dependence of the SM vacuum instability scale*,  
Parallel talk at the “Planck’14” Conference, Paris (May 28, 2014)  
[<https://indico.cern.ch/event/272860/>]
65. *Gauge dependence and the SM vacuum stability*,  
Invited seminar talk at SISSA, Trieste (Mar 28, 2014)
66. *Gauge dependence and the SM vacuum stability*,  
Invited seminar talk at DAMTP, Cambridge (Jan 30, 2014)
67. *Gauge dependence and the SM vacuum stability*,  
Seminar talk at the KIT, Karlsruhe (Jan 22, 2014)
68. *Baryonic R-parity violation and Grand Unification*,  
Parallel talk at the “SUSY’13” Conference, ICTP Trieste (Aug 30, 2013)  
[<http://susy2013.ictp.it>]
69. *Baryonic R-parity violation and Grand Unification*,  
Invited seminar talk at the Jozef Stefan Institute, Ljubljana (Aug 1, 2013)
70. *Towards gauge coupling unification in minimal  $SU(5)$  at 3-loop accuracy*,  
Invited talk at the “Portoroz’13” Workshop, Portoroz (Apr 15, 2013)  
[<https://indico.cern.ch/event/217621/>]
71. *Towards gauge coupling unification in minimal  $SU(5)$  at 3-loop accuracy*,  
Parallel talk at the “BLV2013” Workshop, MPIK Heidelberg (Apr 8, 2013)  
[<https://www.mpi-hd.mpg.de/BLV2013/>]
72. *Towards gauge coupling unification in minimal  $SU(5)$  at 3-loop accuracy*,  
Parallel talk at the “6th Annual Helmholtz Alliance” Workshop, Hamburg (Dec 4, 2012)  
[<https://indico.desy.de/indico/event/5679/>]
73. *Towards gauge coupling unification in minimal  $SU(5)$  at 3-loop accuracy*,  
Seminar talk at the KIT, Karlsruhe (Nov 28, 2012)
74. *Towards gauge coupling unification in minimal  $SU(5)$  at 3-loop accuracy*,  
Invited talk at the “18th SFB/TR9 meeting”, Berlin (Oct 1, 2012)  
[<http://sfb-tr9.ttp.kit.edu/veranstaltungen/index.en.html>]
75. *Minimal Flavour Violation without R-parity*,  
Parallel talk at the “DESY Theory workshop”, Hamburg (Sep 26, 2012)  
[<http://th-workshop2012.desy.de>]
76.  *$SO(10)$ : the quest for the minimal theory*,  
Invited seminar talk at the Gran Sasso National Labs (Mar 13, 2012)
77. *R-parity Violation: a different approach to neutrino masses and dark matter*,  
Seminar talk at the KIT, Karlsruhe (Nov 30, 2011)
78. *Grand Unification: the quest for the minimal theory*,  
Invited seminar talk at the CP3-Origins, Odense (Nov 7, 2011)
79. *Unification without supersymmetry: where do we stand?*,  
Parallel talk at the “Planck’11” Conference, Lisbon (Jun 1, 2011)  
[<https://indico.cern.ch/event/112851/>]
80. *Aspects of symmetry breaking in  $SO(10)$  GUTs*,  
Invited seminar talk at the KIT, Karlsruhe (May 5, 2011)

81. *New aspects of symmetry breaking in Grand Unified Theories*,  
Invited seminar talk at the IFAE, Barcelona (Dec 16, 2010)
82. *New aspects of symmetry breaking in Grand Unified Theories*,  
Invited seminar talk at the IFIC, Valencia (Dec 13, 2010)
83. *New aspects of symmetry breaking in Grand Unified Theories*,  
Parallel talk at the “DISCRETE’10” Conference, Rome (Dec 6, 2010)
84. *New aspects of symmetry breaking in Grand Unified Theories*,  
Invited seminar talk at the TUM, Munich (Dec 3, 2010)
85. *New aspects of symmetry breaking in Grand Unified Theories*,  
SPhT Journal Club, Saclay (Nov 15, 2010)
86. *Recent developments in nonsupersymmetric  $SO(10)$  unification*,  
Poster presentation at the “IFAE 2010” Conference, Rome (Apr 7, 2010)  
[<http://ifae2010.roma1.infn.it>]
87. *Towards a minimal non-SUSY  $SO(10)$  unification*,  
2nd Prometeo workshop, Valencia (Dec 10, 2009)  
[<http://ific.uv.es/~gabriela/workshop.html>]