

Luca Di Luzio

Curriculum Vitae

Dipartimento di Fisica e Astronomia
Università di Padova
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Educazione scientifica

- 26/09/2011 **PhD in Elementary Particle Theory**,
International School for Advanced Studies (ISAS/SISSA), Trieste, Italy,
Titolo della tesi: *Aspects of Symmetry Breaking in Grand Unified Theories*,
Relatore: Stefano Bertolini.
- 28/09/2007 **Laurea Specialistica in Fisica**, *Università di Roma "La Sapienza"*, Roma, Italy,
Titolo della tesi: *Pendenza e curvatura dei fattori di forma del decadimento $K_{\ell 3}$ nella QCD su reticolo*, Relatore: Guido Martinelli; Co-relatori: Gino Isidori, Federico Mescia.
Voto: 110/110 cum laude
- 05/10/2005 **Laurea Triennale in Fisica**, *Università dell'Aquila*, L'Aquila, Italy,
Titolo della tesi: *Relatività generale e manifestazioni fisiche della curvatura dello spazio*,
Relatore: Zurab Berezhiani.
Voto: 110/110 cum laude

Posizione lavorativa attuale

- 2021 – in corso **Ricercatore universitario a tempo determinato (tipo A)**,
Dipartimento di Fisica e Astronomia, Università di Padova,
Istituto Nazionale di Fisica Nucleare, Sezione di Padova.

Posizioni lavorative precedenti

- 2019 – 2021 **Marie Skłodowska-Curie Fellow**, *DESY*, Hamburg, Germany
Axion physics, funded by a H2020-MSCA-IF-2018 personal grant.
- 2018 – 2019 **Assegnista di Ricerca**, *Dipartimento di Fisica, Università di Pisa*, Italy
Beyond the Standard Model, funded by an ERC-AdG-2014 (PI: Alessandro Strumia).
- 2016 – 2018 **Research Associate**, *IPPP, Durham University*, United Kingdom
Higgs and Flavour physics, funded by an STFC UK grant.
- 2014 – 2016 **Assegnista di Ricerca**, *Dipartimento di Fisica, Università di Genova*, Italy
Beyond the Standard Model, funded by an FP7-PEOPLE-2013-CIG (PI: Carla Biggio).
- 2011 – 2014 **Research Fellow**, *Karlsruhe Institute of Technology*, Germany
Multi-loop calculations in grand unified theories, funded by DFG.

Qualifiche professionali

- 14/04/2021 **Abilitazione scientifica nazionale per professore di I fascia**, settore concorsuale 02/A2, fisica teorica delle interazioni fondamentali, valida fino al 14/04/2030.
- 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 ricercatori di III livello**, per attività di ricerca nel campo della fisica teorica delle interazioni fondamentali.

Progetti di ricerca personali e borse di studio

- 2019 – 2021 **Marie Skłodowska-Curie Individual Fellowship**, DESY, Hamburg, Germany AXIONRUSH (840791). H2020-MSCA-IF-2018 program. Finanziamento: 173 kEUR.
- 2007 – 2011 **SISSA PhD fellowship for graduate students**, Trieste, Italy.
2007 **Borsa di studio INFN/Roma-1 per laureandi**, Roma, Italy.

Premi e riconoscimenti [titoli in allegato]

- 2020 **Performance bonus awarded by the DESY Director**, “in recognition of the special commitment to axion model building and phenomenology”.
- 2020 **Physical Review Letters Editors’ Suggestion**, L’articolo “Solar axions cannot explain the XENON1T excess”, by L. Di Luzio et al. [*Phys. Rev. Lett.* 125, 131804 (2020)], è stato selezionato “due to its particular importance, innovation, and broad appeal”.
- 2017 **Physical Review Letters Editors’ Suggestion**, L’articolo “Redefining the Axion Window”, by L. Di Luzio et al. [*Phys. Rev. Lett.* 118, 031801 (2017)], è stato selezionato “due to its particular importance, innovation, and broad appeal”.
- 2017 **Outstanding contribution in reviewing**, premio da parte della rivista *Physics Letters B* “in recognition of the contributions made to the quality of the journal”.

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: SO(10) & friends, magnetic monopoles;
- Non-perturbative aspects of QFT (e.g. vacuum decay and strong CP);
- Particle cosmology: dark matter, topological defects, baryogenesis.

Riassunto dell’attività scientifica

- Autore di 64 pubblicazioni, di cui 49 su riviste “peer reviewed” (2 come autore singolo): ***Physics Reports* (1)**, ***Physical Review Letters* (6)**, *Journal of High Energy Physics* (20), *Physical Review D* (16), *European Physics Journal C* (3), *Physics Letters B* (1), *Journal of Cosmology and Astroparticle physics* (1), *Reviews in Physics* (1);
- Numero di citazioni: > 2000; h-index: 24 ([INSPIRE](#), published only);
- 92 interventi come relatore presso conferenze/workshops ed università/centri di ricerca, di cui 70 come “invited speaker” (lista completa degli interventi in Annex I).

Attività didattica

- 2021/2022 **Advanced topics in the Theory of Fundamental Interactions** (24 ore), *Laurea magistrale in Physics, Università di Padova*, responsabile del corso.
- 2021/2022 **Fisica** (24 ore), *Scienze e Tecnologie per l'Ambiente, Università di Padova*, Laurea triennale, docente del corso.
- 2020/2021 **Fisica** (24 ore), *Scienze e Tecnologie Alimentari, Università di Padova*, Laurea triennale, docente del corso.
- 2018 **Axions and the strong CP problem**, *Durham University*, Corso di dottorato.
- 2018 **An introduction to the standard model of electroweak interactions**, *GGI Firenze*, Esercitatore per la scuola di PhD "GGI lectures on theory of fundamental interactions 2018".
- 2017/2018 **Foundations of Physics 1**, *Durham University*, Assistente del corso.
- 2016/2017 **Foundations of Physics 1**, *Durham University*, Assistente del corso.
- 2015/2016 **Fisica** (12 ore), *Scienze Ambientali e Naturali, Università di Genova*, Laurea triennale, assistente del corso.
- 2012/2013 **Computational Physics**, *Karlsruhe Institute of Technology, Germania*, Laurea specialistica, assistente del corso.
- 2011/2012 **Computational Physics**, *Karlsruhe Institute of Technology, Germania*, Laurea specialistica, assistente del corso.

Supervisione di studenti

Dottorato

- 02/2021 – in corso **Claudio Toni**, *Sapienza, Università di Roma*, Co-relatore. Titolo della tesi: *Aspects of light dark sectors: UV/IR connection*.

Laurea magistrale

- 09/2021 – in corso **Beatrice Munari**, *Università di Padova*, Relatore. Titolo della tesi: *Flavour phenomenology of non-universal axion models*.
- 09/2020 **Gioacchino Piazza**, *Sapienza, Università di Roma*, Co-relatore. Titolo della tesi: *Next-to-Leading Order Axion-Pion Lagrangian and the Hot Dark Matter Bound*, Voto: 110/110 cum laude.
- 09/2020 **Federica Devoto**, *Università di Genova*, Relatore. Titolo della tesi: *Quantum tunnelling in field theory and its application to the Standard Model of electroweak interactions*, Voto: 110/110 cum laude.
- 09/2016 **Simone Devoto**, *Università di Genova*, Relatore. Titolo della tesi: *On the metastability of the Universe ground state in the standard model and its extensions* Voto: 110/110 cum laude.

Laurea triennale

- 09/2021 – in corso **Federico Testagrossa**, *Università di Padova*, Relatore. Titolo della tesi: *Studio di potenziali non-relativistici per la fisica dell'assione*.

Summer students

- 07/2018 **Victor Juan Forouhar Moreno**, *Durham University*,
Supervisore. Titolo del progetto: *Introduction to Grand Unified Theories*.

Attività di coordinamento

Organizzazione di eventi scientifici

- 2020 – 2021 **Newton 1665** (webinars on phenomenology/theory/astrophysics/cosmology).
2016 **IFAE2016**, *Università di Genova*, Convenor della sessione “Intensity Frontier”.
2015 – 2016 **Particle Physics Phenomenology Seminars**, *Università di Genova*.

Partecipazione a gruppi di lavoro

- 2019 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.
2019 Membro del gruppo di lavoro “Higgs Boson Pair Production at Colliders: Status and Perspectives”, in collaborazione con il “LHC Higgs Cross Section Working Group”.
2018 Membro del gruppo di lavoro del CERN “Compact Linear Collider (CLIC) Physics Potential”.

Attività di revisione

- 2012 – in corso **Revisore per riviste scientifiche**, *European Physical Journal C*, *Physical Review D*, *Physical Review Letters*, *Physics Letters B*, *Journal of High Energy Physics*, *SciPost Physics*.
2021 – in corso **Revisore esterno per la VQR 2015-2019**.

Attività di valorizzazione e trasferimento della conoscenza

- 2017 **Modelling the Invisible**, *Royal Society Summer Science Exhibition*, London, Co-organizzatore per la Durham University.
2016 Organizzazione, coordinamento e direzione dell’attività “Formazione alla ricerca scientifica – PLS 2016, per lo stage di “Fisica Moderna” indirizzato a studenti delle scuole medie superiori presso il dipartimento di Fisica dell’Università di Genova [titolo in allegato].
2015 Organizzazione, coordinamento e direzione dell’attività “Formazione alla ricerca scientifica” – PLS 2015, per lo stage di “Fisica Teorica delle interazioni fondamentali” indirizzato a studenti delle scuole medie superiori presso il dipartimento di Fisica dell’Università di Genova [titolo in allegato].

Ramona Gröber

Curriculum Vitae

Università di Padova,
Dipartimento di Fisica e Astronomia “Galileo Galilei”,
Via Marzolo 8,
35131 Padova, Italia
✉ email: ramona.groeber@pd.infn.it

Professional career

- Dec 19 – May 20 **Maternity leave.**
- Since Oct 19 **Ricercatore a tempo determinato tipo B (corresponds to Assistant Professor with Tenure Track to Associate Professor),**
Università di Padova, Padova, Italy.
- Oct 18 – Sep 19 **W2 Professor (5 years fixed term),**
Humboldt-Universität zu Berlin, Berlin, Germany.
- Oct 16 – Sep 18 **Junior Research Fellow,**
Institute of Particle Physics Phenomenology, Durham University, Durham, United Kingdom.
- Oct 14 – Sep 16 **Postdoctoral researcher,**
Istituto Nazionale di Fisica Nucleare (INFN), Sezione di Roma Tre, Rome, Italy.
- May 14 – Sep 14 **Postdoctoral researcher,**
Karlsruhe Institute of Technology, Karlsruhe, Germany.

Education

- Mar 11 – Apr 14 **PhD in Elementary Particle Theory,**
Karlsruhe Institute of Technology, Karlsruhe, Germany.
Thesis title: “*Aspects of Higgs physics and New Physics at the LHC*”,
Supervisor: Prof. Dr. Margarete Mühlleitner.
- 2011 **Diploma in Physics,**
Karlsruhe Institute of Technology, Karlsruhe, Germany.
Thesis title: “*Higgs pair production in the Composite Higgs Model*”,
Supervisor: Prof. Dr. Margarete Mühlleitner,
Grade: 1.0 (very good) with honors.

Research interests

- Higgs Physics
- Beyond the Standard Model phenomenology
- Higher order calculations (QCD and electroweak)
- Dark Matter at colliders

Summary of Research Activity

- 45 scientific papers, of which 30 published in peer-reviewed journals. See Annex.
- Bibliometrics: 1800 citations (published only), with h-index of 22 on the inspire-hep platform.

- 59 talks, of which 16 invited talks at international conferences, 17 seminar talks at universities or research centers and 3 at an internal ATLAS/CMS meeting. See Annex.

Summary of Teaching Activity

- 28 courses either as responsible or teaching assistant on Bachelor, Master and PhD level. See Annex.
- Supervision of students: 2 PhD student, 7 Bachelor students, 1 summer student.
- Several outreach activities (movies, science exhibitions, public talks). See Annex.

Grants and Awards

- Sep 18 Durham Department of Physics Award for Excellence
- Oct 16 – Sep 18 Marie Curie COFUND Fellowship at Durham University
- Jun 11 – Dec 13 Grant of the “Landesgraduiertenförderung des Landes Baden-Württemberg”

Habilitation

- Mar 2018 Habilitation in Theoretical Particle Physics (Associate Professorship level, valid until 03/2024), Italian Ministry for University and Research.

Other Scientific Activities

- June 2022 Member of the International Organisation committee for the Invisibles Workshop and School 2022, taking place in Orsay, France.
- May – June 2022 Member of the International Organisation committee for the Higgs Pairs 2022 workshop, taking place in Dubrovnik, Croatia.
- Since May 2018 Theory convenor of the HH subgroup of the LHC Higgs Cross Section Working group.
- Sep 2019 Local Organiser of the Berlin QFT Master Class (summer school for master students) taking place from 2nd Sep – 6th Sep, 2019 at the HU Berlin.
- Jul 2019 Convenor of the Higgs session of the Conference of the European Physical Society (EPS) of High Energy Physics 2019.
- Oct 19 Editor of the section on “BSM Higgs resonant production” for the HH whitepaper “Higgs Boson Pair Production at Colliders: Status and Perspectives” [arXiv: 1910.00012] of the “*Double Higgs at Colliders*” workshop Sep 2018 at Fermilab, United States.
- Sep 2018 Organisation of the theory talks for the workshop “*Double Higgs at Colliders*”, 4th Sep – 8th Sep, 2018, at Fermilab, United States.
- May 2017 Local Organiser of the workshop “*Higgs Effective Theories (HEFT) 2017*”, 22nd May – 24th May, 2017, in Lumley Castle, Chester-Le-Street, UK.
- Jan 16 – Sep 16 Organiser of the seminars of the theory group of INFN, Sezione di Roma Tre.
- Since 2015 Peer reviewer for the following journals: Journal of Physics G, Nuclear Physics B, Physical Review D, European Journal of Physics C and Journal of High Energy Physics.

Publications

- [1] L. Alasfar, G. Degrossi, P. Giardino, R. Gröber and M. Vitti,
“*Virtual corrections to $gg \rightarrow ZH$ via a transverse momentum expansion*”, JHEP 05 (2021) 168, [arXiv:2103.06225].
- [2] L. Di Luzio, R. Gröber and P. Paradisi,
“*Hunting for CP-violating axionlike particle interactions*”, Phys.Rev.D 104 (2021) 9, 095027, [arXiv:2010.13760].
- [3] L. Alasfar, R. Corral Lopez and R. Gröber,
“*Probing Higgs couplings to light quarks via Higgs pair production*”, JHEP 1911 (2019) 088, [arXiv:1909.05279].
- [4] R. Gröber, A. Maier and T. Rauh,
“*Top quark mass effects in $gg \rightarrow ZZ$ at two loops and off-shell Higgs interference*”, Phys. Rev. D100 (2019) 114013, [arXiv:1908.04061].
- [5] J. Davies, R. Gröber, A. Maier, T. Rauh and M. Steinhauser,
“*Top quark mass dependence of the Higgs boson-gluon form factor at three loops*”, Phys. Rev. D100 (2019), 034017, [arXiv:1906.00982].
- [6] T. N. Dao, R. Gröber, M. Krause, M. Mühlleitner and H. Rzehak,
“*Two-loop $\mathcal{O}(\alpha_t^2)$ corrections to the neutral Higgs boson masses in the CP-violating NMSSM*”, JHEP 1908 (2019) 114, [arXiv:1903.11358].
- [7] R. Bonciani, G. Degrossi, P. Giardino and R. Gröber,
“*A Numerical Routine for the Crossed Vertex Diagram with a Massive-Particle Loop*”, Comput. Phys. Commun. 241 (2019) 122-131, [arXiv:1812.02698].
- [8] L. Di Luzio, R. Gröber and G. Panico,
“*Probing new electroweak states via precision measurements at the LHC and future colliders*”, JHEP 1901 (2019) 011, [arXiv:1810.10993].
- [9] R. Bonciani, G. Degrossi, P. Giardino and R. Gröber,
“*Analytical Method for Next-to-Leading-Order QCD Corrections to Double-Higgs Production*”, Phys. Rev. Lett. 121 (2018) 16, 162003, [arXiv:1806.11564].
- [10] M. Chala, R. Gröber and M. Spannowsky,
“*Searches for vector-like quarks at future colliders and implications for composite Higgs models with dark matter*”, JHEP 1803 (2018) 040, [arXiv:1801.06537].
- [11] R. Gröber, A. Maier and T. Rauh,
“*Reconstruction of top-quark mass effects in Higgs Pair production and other gluon-fusion processes*”, JHEP 1803 (2018) 020, [arXiv:1709.07799].
- [12] R. Gröber, M. Mühlleitner and M. Spira,
“*Higgs Pair Production at NLO QCD for CP-violating Higgs Sectors*”, Nucl. Phys. B925 (2017) 1-27, [arXiv:1705.05314].

- [13] L. Di Luzio, R. Gröber and M. Spannowsky,
“*Maxi-sizing the trilinear Higgs self-coupling: how large could it be?*”,
Eur. Phys. J. C77 (2017) 11, 788, [arXiv:1704.02311].
- [14] P. Drechsel, R. Gröber, S. Heinemeyer, M. Mühlleitner, H. Rzehak and G. Weiglein,
“*Higgs-Boson Masses and Mixing Matrices in the NMSSM: Analysis of On-Shell Calculations*”,
Eur. Phys. J. C77 (2017) 366, [arXiv:1612.07681].
- [15] G. Degrossi, P. P. Giardino and R. Gröber,
“*On the two-loop virtual QCD corrections to Higgs boson pair production*”,
Eur. Phys. J. C76 (2016) 7, [arXiv:1603.00385].
- [16] R. Gröber, M. Mühlleitner and M. Spira,
“*Signs of Composite Higgs Pair Production at Next-to Leading Order*”,
JHEP 1606 (2016) 080, [arXiv:1602.05851].
- [17] A. Agostini, G. Degrossi, R. Gröber and P. Slavich,
“*NLO-QCD corrections to Higgs pair production in the MSSM*”,
JHEP 1604 (2016) 106, [arXiv:1601.03671].
- [18] F. Staub, P. Athron, U. Ellwanger, R. Gröber, M. Mühlleitner, P. Slavich and A. Voigt,
“*Higgs mass predictions of public NMSSM spectrum generators*”,
Comput. Phys. Commun. 202 (2016) 113-130, [arXiv:1507.05093].
- [19] R. Gröber, M. Mühlleitner, M. Spira and J. Streicher,
“*NLO QCD Corrections to Higgs Pair Production including Dimension-6 Operators*”,
JHEP 1509 (2015) 092, [arXiv:1504.06577].
- [20] L. Di Luzio, R. Gröber, J. F. Kamenik and M. Nardecchia,
“*Accidental matter at the LHC*”,
JHEP 1507 (2015) 074, [arXiv:1504.00359].
- [21] R. Gröber, M. Mühlleitner, E. Popena and A. Wlotzka,
“*Light stop decays into $Wb\tilde{\chi}_1^0$ near the kinematic threshold*”,
Phys. Lett. B747 (2015) 144-151, [arXiv:1502.05935].
- [22] R. Gröber, M. Mühlleitner, E. Popena and A. Wlotzka,
“*Light Stop Decays: Implications for LHC Searches*”,
Eur. Phys. J. C75 (2015) 9, 420, [arXiv:1408.4662].
- [23] J. Baglio, R. Gröber, M. Mühlleitner, D.T. Nhung, H. Rzehak, M. Spira, J. Streicher and K. Walz,
“*NMSSMCALC: A Program Package for the Calculation of Loop-Corrected Higgs Boson Masses and Decay Widths in the (Complex) NMSSM*”,
Comput. Phys. Commun. 185 (2014) 12, 3372-3391, [arXiv:1312.4788].
- [24] M. Gillioz, R. Gröber, A. Kapuvari and M. Mühlleitner,
“*Vector-like Bottom Quarks in Composite Higgs Models*”,
JHEP 1403 (2014) 037, [arXiv:1311.4453].
- [25] J. Baglio, A. Djouadi, R. Gröber, M. M. Mühlleitner, J. Quevillon and M. Spira,
“*The measurement of the Higgs self-coupling at the LHC: theoretical status*”,
JHEP 1304 (2013) 151, [arXiv:1212.5581].
- [26] M. Gillioz, R. Gröber, C. Grojean, M. Mühlleitner and E. Salvioni,
“*Higgs Low-Energy Theorem (and its corrections) in Composite Models*”,
JHEP 1210 (2012) 004, [arXiv:1206.7120].

- [27] T. Graf, R. Gröber, M. Mühlleitner, H. Rzehak and K. Walz,
“*Higgs Boson Masses in the Complex NMSSM at One-Loop Level*”,
JHEP 1210 (2012) 122, [arXiv:1206.6806].
- [28] R. Gröber and M. Mühlleitner,
“*Composite Higgs Boson Pair Production at the LHC*”,
JHEP 1106 (2011) 020, [arXiv:1012.1562].

Working group publications

- [29] P. Slavich and S. Heinemeyer (eds.),
“*Higgs-mass predictions in the MSSM and beyond*”, Eur.Phys.J.C 81 (2021) 5, 450,
[arXiv:2012.15629].
- [30] B. Di Micco et al.,
“*Higgs pair production at colliders: status and perspectives*”, Rev.Phys. 5 (2020)
100045 [arXiv:1910.00012]. Editor for the “New Physics in Higgs pair production”
section.
- [31] CLIC Working Group,
“*The CLIC potential for New Physics*”, [arXiv:1812.02093].
- [29] LHC Higgs Cross Section Working Group,
“*Handbook of LHC Higgs Cross Sections: 4. Deciphering the Nature of the Higgs
Sector*”, [arXiv:1610.07922].

Proceedings

- [32] J. Davies, R. Gröber, A. Maier, T. Rauh and M. Steinhauser,
“*Padé approach to top-quark mass effects in gluon fusion amplitudes*”, PoS RAD-
COR2019 (2019) 079, [arXiv:1912.04097].
- [33] L. Alasfar and R. Gröber,
“*Probing light Yukawa couplings in Higgs pair production*”, [arXiv: 1910.04546].
- [34] M. Chala, R. Gröber and M. Spannowsky,
“*Interplay between collider searches for vector-like quarks and dark matter searches
in composite Higgs models*”, Int. J. Mod. Phys. A34 (2019) 1940011.
- [35] D. Barducci, H. Cai, T. Flacke, B. Fuks, R. Gröber, W. Porod and T. Rizzo,
“*Exotic decays of heavy boson into SM quarks and vector-like quarks*”,
Les Houches 2017: Physics at TeV Colliders, New Physics Working Group Report,
[arXiv:1803.10379].
- [36] R. Gröber, O. Mattelaer and K. Mimasu,
“*Comparing effective field theory operator bases numerically*”,
Les Houches 2017: Physics at TeV Colliders, New Physics Working Group Report,
[arXiv:1803.10379].
- [37] A. Carvalho, R. Gröber, S. Liebler and J. Quevillon,
“*Interferences in searches for heavy Higgs bosons*”,
Les Houches 2017: Physics at TeV Colliders, New Physics Working Group Report,
[arXiv:1803.10379].
- [38] R. Gröber,
“*Pair Production of Beyond the Standard Model Higgs Bosons*”,
[arXiv:1611.07391].

- [39] R. Gröber,
“*Light Stop Decays*”,
[arXiv:1509.04604].
- [40] L. Di Luzio, R. Gröber, J. F. Kamenik and M. Nardecchia,
“*Accidentally safe extensions of the Standard Model*”,
[arXiv:1509.00367].
- [41] J. Baglio, T. N. Dao, R. Gröber, M. M. Mühlleitner, H. Rzehak, M. Spira, J. Streicher and K. Walz,
“*NMSSMCALC - a Fortran Package for Higher Order Higgs Boson Masses and Higgs Decay Widths in the Real and the Complex NMSSM*”,
Les Houches 2013, New Physics Working Group, [arXiv:1405.1617].
- [42] R. Gröber and M. Mühlleitner,
“*Higgs Pair Production in Composite Higgs Models at the ILC*”,
Helmholtz Alliance Linear Collider Forum: Proceedings of the Workshops Hamburg, Munich, Hamburg 2010-2012, Germany
- [43] J. Baglio, T. N. Dao, R. Gröber, M. M. Mühlleitner, H. Rzehak, M. Spira, J. Streicher and K. Walz,
“*A new implementation of the NMSSM Higgs boson decays*”,
EPJ Web Conf. 49 (2013) 12001.
- [44] R. Gröber and M. Mühlleitner,
“*Higgs pair production in the composite Higgs model*”,
PoS CORFU 2011 (2011) 021.

PhD thesis

- [45] R. Gröber,
“*Aspects of Higgs Physics and New Physics at the LHC*”,
Karlsruhe Institute of Technology, 2014.

Talks

- Nov 2021 “*Di-Higgs production in effective field theory*”, (invited),
ATLAS HH workshop, online.
- June 2021 “*HH production in a global fit*”, (invited),
Large Hadron Collider Physics conference (LHCp) 2021, online conference.
- June 2021 “*BSM effects in di-Higgs production*”, (invited),
Weak interactions and Neutrinos 21, online conference.
- June 2021 “*Di-Higgs production in effective field theory*”, (invited),
seminar for the CMS Higgs group.
- Nov 2019 “*Top quark mass effects in $gg \rightarrow ZZ$ at two loops and off-shell Higgs interference*”,
HXSWG Offshell and Interference Meeting, CERN, via vidyo.
- Apr 2019 “*Quo vadis, Higgs?*”,
Antrittsvorlesung, Humboldt-University Berlin, Germany.
- Mar 2019 “*Back to the future: the Higgs boson*”, (invited),
Seminar talk, University of Padova, Italy.
- Jan 2019 “*Probing the Higgs Boson in pairs*”, (invited),
Seminar talk, University of Heidelberg, Germany.

- Jan 2019 “*Top quark mass effects in gluon fusion processes*”, (invited), Seminar talk, Milan, Italy.
- Dec 2018 “*Future probes of the Higgs Boson*”, (invited), 7th Rome Joint Workshop, Frascati, Italy.
- Dec 2018 “*HH theory*”, LHC Higgs cross section working group general assembly, CERN, Geneva, Switzerland.
- Dec 2018 “*Probing the Higgs Boson in pairs*”, (invited), Seminar talk, Madrid, Spain.
- Oct 2018 “*Top quark mass effects in gluon fusion processes*”, (invited), Seminar talk, Karlsruhe, Germany.
- Sep 2018 “*Composite Higgs Models and how to probe them*”, (invited), HDays’18, Santander, Spain.
- Sep 2018 “*SM and BSM Higgs properties*”, (invited), Invisibles Workshop, Karlsruhe, Germany.
- June 2018 “*Dark Matter in Composite Higgs Models*”, MITP workshop, “The Future of BSM Physics”, Capri, Italy.
- May 2018 “*Higgs pair production as a window to new physics*”, (invited), DESY, Hamburg, Germany.
- Apr 2018 “*Composite Higgs Models*”, (invited), MC4BSM Workshop, Durham, UK.
- Mar 2018 “*About Dark Matter scenarios in Composite Higgs Models and how to probe them*”, (invited), Seminar talk, LNF, Frascati, Italy.
- Mar 2018 “*Top quark mass effects in gluon fusion processes*”, (invited), Seminar talk, Max Planck Institute, Munich, Germany.
- Mar 2018 “*Future probes of the (beyond the) Standard Model Higgs boson*”, (invited), 82nd Meeting of the German Physics Society (DPG), Würzburg, Germany.
- Dec 2017 “*Mazi-sizing the trilinear Higgs self-coupling*”, (invited), IRN Terascale meeting, Marseille, France.
- Nov 2017 “*The future of BSM Higgs phenomenology*”, (invited), Discussion session, “Out of the Higgs era into the dark”, Durham, UK.
- Nov 2017 “*Composite Higgs Models*”, (invited), Higgs couplings, Heidelberg, Germany.
- Nov 2017 “*On Higgs pair production and the trilinear Higgs self-coupling*”, (invited), Seminar talk, NIKHEF, Amsterdam, Netherlands.
- Sep 2017 “*Higgs pair production and the trilinear Higgs self-coupling*”, HDays’17, Santander, Spain.
- May 2017 “*Higgspaarproduktion als Fenster zu Neuer Physik*”, (in German, invited), Seminar talk, Humboldt Universität zu Berlin, Berlin, Germany.
- Apr 2017 “*Higgs pair production and the trilinear Higgs self-coupling*”, (invited), Seminar talk, SISSA, Trieste, Italy.
- Apr 2017 “*On the Higgs self-coupling modifications*”, (invited), Portoroz 2017, Portoroz, Slovenia.
- Mar 2017 “*New Physics Deviations in Higgs Pair Production at the LHC*”, 3rd Toyama International Workshop on “Higgs as a Probe of New Physics”, Toyama, Japan.

- Nov 2016 *“Pair Production of Beyond the Standard Model Higgs Bosons”*,
Seminar, IPPP, University of Durham, Durham, UK.
- July 2016 *“Pair Production of Beyond the Standard Model Higgs Bosons”*, (invited),
5th International Conference New Frontiers in Physics, Kolymbari, Crete, Greece.
- May 2016 *“Higgs Pair Production in Standard Model Extensions”*, (invited)
Seminar talk at the Brookhaven National Laboratory, Brookhaven, United States.
- May 2016 *“New Physics in Higgs Pair Production”*,
Phenomenology 2016, Symposium, Pittsburgh, United States
- Oct 2015 *“Beyond the Standard Model Higgs pair production”*, (invited),
HEPKIT workshop, Karlsruhe Institute of Technology, Karlsruhe, Germany.
- June 2015 *“NMSSMCALC”*, (invited),
Meeting of the WG3 subgroup of the LHC Higgs cross section WG, via video.
- June 2015 *“Light stop decays”*, (invited),
27th Rencontres de Blois, Blois, France.
- Apr 2015 *“Higgs pair production in strongly-interacting models”*,
Workshop on Higgs pair production, MITP, Mainz, Germany.
- Apr 2015 *“Accidental matter at the LHC”*, (invited),
Portoroz 2015, Portoroz, Slovenia.
- Apr 2015 *“Higgs pair production in the Standard Model and beyond”*,
Seminar at the University Roma Tre, Italy.
- Feb 2015 *“Higgs pair production in the Standard Model and beyond”*, (invited),
Seminar at the University of Genoa, Italy.
- Oct 2014 *“Light stop decays”*, (invited),
Internal ATLAS meeting, via video.
- Sep 2014 *“Vector-like bottom quarks in Composite Higgs Models”*, (invited),
Workshop on vector-like quarks, DESY, Hamburg, Germany.
- May 2014 *“Light stop decays”*,
Planck 2014, Paris, France.
- Jan 2014 *“Vector-like fermions in Composite Higgs models”*, (invited),
Seminar at the DAMTP, Cambridge, UK.
- Dec 2013 *“Higgs boson(s) in the Standard Model and beyond”*, (invited),
Seminar at the University of Würzburg, Germany.
- Oct 2013 *“Vector-like fermions in Composite Higgs models”*, (invited),
Seminar at the Paul-Scherrer-Institute (PSI), Villigen, Switzerland.
- Oct 2013 *“Vector-like fermions in Composite Higgs models”*,
Workshop of GRK/KCETA 2013, Bad Liebenzell, Germany.
- Aug 2013 *“Vector-like bottom partners in Composite Higgs models”*,
SUSY 2013, Trieste, Italy.
- Mar 2013 *“Theoretical status of the measurement of the Higgs self-coupling”*,
77th Meeting of the German Physics Society (DPG), Dresden, Germany.
- Dec 2012 *“The low-energy theorem in Composite Higgs models”*,
6th Annual Workshop of the Helmholtz Alliance, DESY, Hamburg, Germany.

- Oct 2012 *“Single and Double Higgs production in Composite Higgs models with heavy top-partners”*,
18th meeting of the SFB/TR9, Berlin, Germany.
- Sep 2012 *“Higgs-Paar-Production in Composite Higgs Modellen”*, (in German),
44th Herbstschule für Hochenergiephysik, Maria Laach, Germany.
- Feb 2012 *“Higgs pair production in Composite Higgs models and the effects of heavy top partners”*,
76th Meeting of the German Physics Society (DPG), Göttingen, Germany.
- Feb 2012 *“Higgs pair production in Composite Higgs models”*,
3rd LC-Forum, DESY, Hamburg, Germany.
- Sep 2011 *“Higgs pair production in the Composite Higgs model”*,
1st Summer School of ITN: Unification in the LHC Era, Corfu, Greece.
- Jul 2011 *“Higgs pair production in the Composite Higgs model”*, (invited),
Higgs Hunting Workshop 2011, Orsay, France.
- Jul 2011 *“Higgs self-couplings in the Composite Higgs model”*,
2nd LC-Forum, Munich, Germany.
- Mar 2011 *“Higgs pair production in the Composite Higgs model”*,
75th Meeting of the German Physics Society (DPG), Karlsruhe, Germany.

Teaching

- Oct 21 – Jan 22 Campi Elettromagnetici (Classical Field theory) at the University of Padova.
- Oct 21 – Jan 22 Istituzioni di Fisica Teorica (responsible for part of the third year quantum mechanics course) at the University of Padova.
 - June 21 PhD course on “Effective Field theories for particle physics” at the University of Padova.
- Oct 20 – Jan 21 Campi Elettromagnetici (Classical Field theory) at the University of Padova.
- Oct 20 – Dec 20 Istituzioni di Fisica Teorica (responsible for part of the third year quantum mechanics course) at the University of Padova.
- Oct 19 – Dec 19 Istituzioni di Fisica Teorica (responsible for part of the third year quantum mechanics course) at the University of Padova.
 - Sep 19 Lecture on “Electroweak Symmetry Breaking” at the Berlin QFT Master Class (summer school on quantum field theory for Master students), 2/9/19-6/9/19 at the HU Berlin.
- Apr 19 – Jul 19 Seminar on Higgs Physics at the HU Berlin.
- Apr 19 – Jun 19 Lecture and Exercises on Basics of Mathematics (for first semester students) at HU Berlin.
- Oct 18 – Feb 19 Tutorial on Mathematics and Physics for 1st semester students (in the framework of equal opportunity measures) at HU Berlin.
- Oct 18 – Feb 19 Seminar on Particle Physics for Bachelor students “Licht ins Dunkle des Universums” at HU Berlin.
 - May 18 Lecture for MSc and PhD students on “Beyond the Standard Model Higgs” at Durham University.
- academic year 17/18 Tutorials on the Level 1 course “Foundations of Physics” at Durham University.

- May 17 Lecture for MSc and PhD students on “Higgs physics in the Standard Model and beyond” at Durham University.
- Apr 14 – Sep 14 Teaching assistant for Experimental Nuclear and Particle Physics, KIT, Karlsruhe.
- Apr 13 – Sep 13 Teaching assistant for Experimental Nuclear and Particle Physics, KIT, Karlsruhe.
- Oct 12 – Mar 13 Teaching assistant for Experimental Solid State Physics, KIT, Karlsruhe.
- Apr 12 – Sep 12 Teaching assistant for Analytical Mechanics, KIT, Karlsruhe.
- Oct 11 – Mar 12 Teaching assistant for Advanced Quantum Mechanics, KIT, Karlsruhe.
- Apr 11 – Sep 11 Teaching assistant for Quantum Mechanics, KIT, Karlsruhe.
- Oct 10 – Mar 11 Teaching assistant for Electrodynamics and Quantum Mechanics for Teachers, KIT, Karlsruhe.
- Apr 10 – Sep 10 Teaching assistant for Quantum Mechanics, KIT, Karlsruhe.
- Apr 09 – Sep 09 Teaching assistant for Analytical Mechanics, KIT, Karlsruhe.
- Apr 09 – Jul 09 Laboratory assistant for measurement and control systems, KIT, Karlsruhe.
- Oct 08 – Mar 09 Teaching assistant for Electrodynamics, KIT, Karlsruhe.
- Apr 08 – Sep 08 Teaching assistant for Analytical Mechanics, KIT, Karlsruhe.
- Oct 07 – Mar 08 Teaching assistant for Classical Mechanics, KIT, Karlsruhe.
- Sep 07 Laboratory assistant for Material Science, KIT, Karlsruhe.

Outreach

- Apr 2019 Outreach talk at the physical society of high school students at HU Berlin on Higgs Physics. Title: “Das Higgs-Boson: woher bekommen Teilchen ihre Masse?” (talk in German).
- June 2018 Participation to the Pre-application day at Durham University, UK, presenting the Institute of Particle Physics Phenomenology and the “*Modelling the Invisible*” exhibit prepared for the Royal Society Exhibition in London (July 2017).
- Oct 2017 Participation to the “Celebrate Science” Exhibition in Durham, UK, with “*Modelling the Invisible*” prepared for the Royal Society Exhibition in London (July 2017).
- July 2017 Participation to the Royal Society Summer Exhibition in London, UK, with “*Modelling the Invisible*”. In the framework of the exhibition, preparation of outreach material (e.g. movie <https://www.youtube.com/watch?v=TxSUw38a4Vg&t=24s> and information material).
- Oct 10 – Dec 11 Public science project “*Inside Science*” in collaboration with the Centre of Cultural and General studies and the Public Relations and Marketing department of the KIT. Video portal and more information are available at <http://inside-science.forschung.kit.edu>.

Stefano Rigolin | Curriculum Vitae

Studies

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|--|----------------------------------|
| Liceo Classico G. Cotta <i>Diploma Liceo Classico, 60/60</i> | Legnago (VR) 1982–1987 |
| Università degli Studi di Padova <i>Master Degree in Physics, 110/110 e Lode</i> | Padova 1987–1993 |
| Università degli Studi di Padova <i>PhD in Physics,</i> | Padova 1993–1996 |

Master Thesis

Title: *Approccio fenomenologico a teorie lagrangiane effettive con fermioni chirali pesanti*
Supervisors: Prof. F. Feruglio e Prof. A. Masiero

PhD Thesis

Title: *New Physics Virtual Effects in the Process $e^+e^- \rightarrow W^+W^-$*
Supervisor: Prof. F. Feruglio

Postdoctoral Grants

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|---|---------------------------------|
| Grant from “Fondazione Gini” <i>6 months</i> Theoretical Physics Department of the Karlsruhe University – GERMANY | U. Karlsruhe 1997 |
| Individual “Marie Curie” Post Doctoral Research Fellow <i>24 months</i> Theoretical Physics Department of the Universidad Autonoma de Madrid – SPAIN | UAM 1997–1999 |
| University of Michigan Post Doctoral Research Fellow <i>24 months</i> Theoretical Physics Department of the University of Michigan, Ann Arbor – USA | U. Michigan 2000–2001 |
| CERN Post Doctoral Research Fellow <i>24 months</i> CERN Theory Division, CERN | CERN 2001–2003 |

Researcher/Professor Contracts

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|--|----------------------------------|
| Researcher “Ramon y Cajal” <i>Theoretical Physics Department of the Universidad Autonoma de Madrid</i> | UAM 2002–2006 |
| Profesor Contratado Doctor <i>Theoretical Physics Department of the Universidad Autonoma de Madrid</i> | UAM 2006–2007 |
| Researcher <i>Physics Department of the University of Padova</i> | U. Padova 2007–2010 |
| Researcher Confirmed <i>Physics Department of the University of Padova</i> | U. Padova 2010–2014 |
| Associate Professor (Legge 240/2010) <i>Physics Department of the University of Padova</i> | U. Padova 2014–2018 |
| Full Professor (Legge 240/2010) <i>Physics Department of the University of Padova</i> | U. Padova 2018–Present |

Visiting Positions

- 2006:** Visiting position, Theory Division of CERN (3 months)
2010: Visiting position, Institute of Theoretical Physics UAM/CSIC (1 month)
2013: Visiting position, Theory Division of CERN (2 months)
2017: Visiting position, Physics Department of the University of Washington (1 month)
2018: Visiting position, Physics Department of the University of Washington (2 weeks)
2019: Visiting position, Physics Department of the University of Washington (2 weeks)

Teaching Activity

Institutional Teaching Activities.....

- 2007–2010:** Teaching 5 credits (44 hours) of “General Physics 1”, Department of Physics of the University of Padova
2007–2010: Teaching 3 credits (24 hours) of “Quantum Mechanics”, Department of Physics of the University of Padova
2011–2014: Teaching 6 credits (48 hours) of “Quantum Electrodynamics”, Department of Physics of the University of Padova
2014–2018: Teaching 6 credits (48 hours) of “Theoretical Physics”, Department of Physics of the University of Padova
2014–2019: Teaching 9 credits (72 hours) of “General Physics 1”, Department of Engineering of the University of Padova
2019–2021: Teaching 6 credits (48 hours) of “Fundamental Interactions for Particle Physics”, Department of Physics of the University of Padova

2019–2021: Teaching 6 credits (48 hours) of “Theoretical Physics”, Department of Physics of the University of Padova

2019–2021: Teaching 3 credits (24 hours) of “General Physics 1”, Department of Engineering of the University of Padova

Other Teaching Activities.....

2002–2007: Teaching of 24 hours of “Flavour Physics” in the “Standard Model and Beyond” course of the Theoretical Physics Department of the University of Madrid

2005: 5 Lectures (10 hours) of “Physics of massive neutrinos and phenomenology of future LBL experiments” at the “4th International School on Neutrino Factory and Superbeams”, Capri, Italy

2009: 4 Lectures (8 hours) of “Flavour Physics” at the “Nurt09” school, La Habana, Cuba

2010: 5 Lectures (10 hours) “Standard Model and Beyond” for the PhD school of the Physics Department of the University of Padova

2018: 6 Lectures (12 hours) “Effective Field Theory” for the PhD school of the Physics Department of the University of Padova

Thesis Supervision

Undergraduate Thesis.....

2010: Supervisor of the Undergraduate Thesis of Valentino Ramponi, Department of Physics of the University of Padova

2013: Supervisor of the Undergraduate Thesis of Andrea Ravenni, Department of Physics of the University of Padova

Master Thesis.....

2004–2005: Supervisor of the Master Thesis of Matteo Salvatori, Department of Theoretical Physics of the University of Madrid

2006–2007: Supervisor of the Master Thesis of Daniel Hernandez Diaz, Department of Theoretical Physics of the University of Madrid

2008: Supervisor of the Master Thesis of Aurora Meroni, Department of Physics of the University of Padova

2011: Supervisor of the Master Thesis of Roberto Baccaglini, Department of Physics of the University of Padova

2012: Supervisor of the Master Thesis of Denise Vicino, Department of Physics of the University of Padova

2013: Supervisor of the Master Thesis of Ilaria Brivio for the Galileian School of the University of Padova

2016: Supervisor of the Master Thesis of Roberto Sgarlata, Department of Physics of the University of Padova

2017: Supervisor of the Master Thesis of Michele Santagata, Department of Physics of the University of Padova

2019: Supervisor of the Master Thesis of Jacopo Nava, Department of Physics of the University of Padova

2020: Supervisor of the Master Thesis of Angelo Asta, Department of Physics of the University of Padova

2021: Supervisor of the Master Thesis of Marco Magnani, Department of Physics of the University of Padova

PhD Thesis.....

2005–2007: Co-supervisor of the PhD Thesis of Matteo Salvatori, presso il Dipartimento di Fisica Teorica dell'Università Autonoma di Madrid

2005–2007: Co-supervisor of the PhD Thesis of Enrique Fernandez-Martinez, presso il Dipartimento di Fisica Teorica dell'Università Autonoma di Madrid

2013–2017: Supervisor of the PhD Thesis of Kirill Kanshin, Department of Physics of the University of Padova

2014–2017: Supervisor of the PhD Thesis of Ignacio Hierro, Department of Physics of the University of Padova

2017–2019: Supervisor of the PhD Thesis of Federico Pobbe, Department of Physics of the University of Padova

2019–: Supervisor of the PhD Thesis of Alfredo Maria Guerrero, Department of Physics of the University of Padova

2021–: Supervisor of the PhD Thesis of Xavier Ponce Diaz, Department of Physics of the University of Padova

Scientific Activities

Coordination of Scientific Grants.....

2007–2012: National and Local Coordinator of the INFN Grant PD21

2008–2011: National Coordinator of the WP5 for the European Design Study EURO ν

2012–2016: National Coordinator of the European Network ITN–INVISIBLES (FP7-PEOPLE-2011-ITN, PITN-GA-2011-289442)

2016–2019: National Coordinator of the European Network ITN–ELUSIVES (H2020, MSCA-ITN-2015/674896)

2016–2019: National Coordinator of the European Network RISE–INVISIBLESPHYS (H2020, MSCA-RISE-2015/690575)

2020–: National Coordinator of the European Network ITN–HIDDEN (H2020, MSCA-ITN-2019/860881)

Participation to Scientific Grants.....

2002–2007: Participation to the “Phenomenology of the Standard Model and Beyond” grant financed by the Spanish Research Ministry

2004–2008: Participation to the cooperation grant INFN-MICINN, “Neutrinos and Other Windows into New Physics Beyond the Standard Model”

2004–2008: Participation to the European Network “Quest for Unification”, (FP6-MOBILITY-2004, MRTN-CT-2004-503369)

2005–2009: Participation to the grant HEPHACOS (P-ESP-00346), financed by the Comunidad de Madrid

2007–2011: Participation to the Consolider Programme “Physics of Accelerating Universe” financed by the Spanish Research Ministry

2008–2012: Participation to the European Design Study “EURO ν ”, (FP7-INFRASTRUCTURES-2007, Project Number 212372)

2008–2011: Participation to the grant “Progetti di Eccellenza” finanziato dalla Fondazione CARIPARO

2009–2010: Participation to the PRIN 2008, “La ricerca di una teoria unificata nell’era LHC”

2009–2013: Participation to the European network UNILHC, (FP7-PEOPLE-2009-ITN, PITN-GA-2009-237920)

2012–2013: Participation to the PRIN 2010, “Simmetrie, Masse e Misteri”

2012–2016: Participation to the European network ITN-INVISIBLES, (FP7-PEOPLE-2011-ITN, PITN-GA-2011-289442)

2016–2018: Participation to the PRIN 2015, “Search for the fundamental laws and constituents”

2016–2019: Participation to the European network ITN-ELUSIVES (H2020, MSCA-ITN-2015/674896)

2016–2019: Participation to the European network RISE-INVISIBLESPLUS (H2020, MSCA-RISE-2015/690575)

2020–: Participation to the European network ITN-HIDDEN (H2020, MSCA-RISE-2019/860881)

Seminar and Conferences

Organization of Seminars and Conferences.....

2000–2001: Organization of the seminars of the Physics Department of the University of Michigan

2000: Member of the Organizing Committee of the “StringMM” conference, organized by the Physics Department of the University of Michigan

2003: Member of the Organizing Committee of the “Planck 2003” workshop, organized by the Theoretical Physics Department of the Universidad Autonoma de Madrid

2003–2005: Organization of the seminars of the Institute of Theoretical Physics of the Universidad Autonoma de Madrid

2003–2006: Member of the Organizing Committee of the XVIII, del XIX e del XX Christmas Workshop organized by the Department of Theoretical Physics of the Universidad Autonoma de Madrid

2005: Member of the Organizing Committee of the “What’s ν s” workshop organized by the Department of Theoretical Physics of the Universidad Autonoma de Madrid

2009: Member of the Scientific Committee of the “Planck 2009” workshop organized by the Physics Department of the University of Padova

2013: Member of the Organizing Committee of the “Invisibles13” workshop organized by the GGI

2013–2017: Member of the Organizing Committee of the XIV, XV, XVI e XVII Workshop “Neutrino Telescopes” organized by the INFN Padova

2014: Member of the Organizing Committee of the “HEFT2014 - Higgs Effective Field Theories” workshop at the IFT and the Department of Theoretical Physics of the Universidad Autonoma de Madrid

2016: Chair of the Scientific Committee of the “Invisibles6” workshop organized by INFN Padova and by the Department of the Physics Department of the University of Padova

2016: Chair of the Scientific Committee of the “Invisibles16” school organized by INFN Padova and SISSA

2016: Chair of the Local Committee of the “Invisibles16” workshop organized by INFN Padova and by the Physics Department of the University of Padova

Refereeing Activity

- Referee for the following Journals: Journal of High Energy Physics, New Journal of Physics, Physical Review D e Nuclear Physics B
- Referee for the FIRB Program "Futuro in Ricerca" for MIUR
- Referee for the SIR Program for MIUR
- Referee for ANVUR
- Referee ex-post of FIRB Program "Futuro in Ricerca" for MIUR

List of Publications

- [1] “Approccio fenomenologico a teorie lagrangiane effettive con fermioni chirali pesanti” - S. Rigolin, Tesi di Laurea, Università di Padova, Giugno 1993.
- [2] “Bounds on Heavy Chiral Fermions” - A. Masiero, F. Feruglio, S. Rigolin and R. Strocchi, *Phys. Lett.* **B355** (1995) 329.
- [3] “Virtual Effects” - A. Culatti, G. Degrassi, F. Feruglio, A. Masiero, S. Rigolin, L. Silvestrini and A. Vicini in “Physics at LEP2”, CERN 96-01, eds. G. Altarelli, T. Sjostrand and F. Zwirner.
- [4] “Searches for new physics,” G. F. Giudice *et al.*, **hep-ph/9602207**, CERN Yellow Report on Physics at LEP2.

- [5] “Fermion Virtual Effects in SUSY” - A. Culatti, G. Degrassi, F. Feruglio, A. Masiero, S. Rigolin, L. Silvestrini and A. Vicini. Proceedings of the “3rd Workshop on Physics and Experiments with e^+e^- Linear Colliders (LCWS 95)”, **hep-ph/9605415**.
- [6] “Virtual Effects of Heavy Chiral Fermions at e^+e^- Colliders” - S. Rigolin, *Acta Phys. Pol.* **B27** (1996) 1627.
- [7] “Effetti Virtuali di Nuova Fisica nel Processo $e^+e^- \rightarrow W^+W^-$ ” - S. Rigolin, Tesi di Dottorato, Università do Padova, Febbraio 1997.
- [8] “Sum Rules for Asymptotic Form Factors in $e^+e^- \rightarrow W^+W^-$ Scattering” - F. Feruglio and S. Rigolin, *Phys. Lett.* **B397**, (1997) 245.
- [9] “One Loop MSSM Correction to the Weak Dipole Moments of Heavy Fermions” - W. Hollik, J.I. Illana, S. Rigolin and D. Stockinger, *Phys. Lett.* **B416**, (1998) 345.
- [10] “Weak Electric Dipole Moments of Heavy Fermions in MSSM” - W. Hollik, J.I. Illana, S. Rigolin, D. Stöckinger, *Phys. Lett.* **B425**, (1998) 322.
- [11] “One Loop Weak Dipole Form Factors and Weak Dipole Moments of Heavy Fermions” - S. Rigolin, Proceedings of the XXXIII Rencontre de Moriond, **hep-ph/9805313**.
- [12] “Dipole Form Factors and Loop-induced CP Violation in Supersymmetry”- W. Hollik, J.I. Illana, S. Rigolin, C. Schappacher, D. Stöckinger, **hep-ph/9808408**.
- [13] “Top Dipole Form Factors and Loop-induced CP Violation in Supersymmetry”- W. Hollik, J.I. Illana, S. Rigolin, C. Schappacher and D. Stöckinger, *Nucl. Phys.* **B551**, (1999) 3.
- [14] “Aspects of Type I String Phenomenology”- L.E. Ibáñez, C. Muñoz and S. Rigolin, *Nucl. Phys.* **B553**, (1999) 43.
- [15] “Anisotropic Type I String Compactification, Winding Modes and Large Extra Dimensions”- A. Donini and S. Rigolin, *Nucl. Phys.* **B550**, (1999) 59.
- [16] “Winding Modes and Large Extra Dimensions”- A. Donini and S. Rigolin, **hep-ph/9905293**.
- [17] “Neutrino mixing and CP-violation” - A. Donini, M.B. Gavela, P. Hernandez and S. Rigolin, *Nucl. Phys.* **B574** (2000) 23.
- [18] “Four Species Neutrino Oscillations at ν -Factory: sensitivity and CP-violation” - A. Donini, M.B. Gavela, P. Hernandez and S. Rigolin, *Nucl. Instrum. Meth.* **A451** (2000) 58.
- [19] “Fat brane phenomena” - A. De Rujula, A. Donini, M.B. Gavela and S. Rigolin, *Phys. Lett.* **B482** (2000) 195.
- [20] “Golden measurements at a neutrino factory” - A. Cervera, A. Donini, M.B. Gavela, J.J. Gomez-Cadenas, P. Hernandez, O. Mena and S. Rigolin, *Nucl. Phys.* **B579**, (2000) 17.
- [21] “The neutrino factory: beam and experiments” - A. Blondel et al., *Nucl. Instrum. Meth.* **A451** 102, 2000.
- [22] “SUSY-QCD corrections to the MSSM $h^0 b \bar{b}$ vertex in the decoupling limit” - H.E. Haber, M.J. Herrero, H.E. Logan, S. Peñaranda, S. Rigolin and D. Temes, *Phys. Rev.* **D63** 055004, 2001.
- [23] “Summary of Golden measurements at a Neutrino Factory” - A. Donini, O. Mena and S. Rigolin, *Nucl.Instrum.Meth* **A472** (2000) 403.
- [24] “Update on four-family neutrino oscillations at Neutrino Factory” - A. Donini and S. Rigolin, **hep-ph/0007283**.
- [25] “Physics at a Neutrino Factory”, C. Albright et al., **hep-ex/0008064**.
- [26] “Implications of muon g-2 for supersymmetry and for discovering superpatners directly” -

- L. Everett, G.L. Kane, S. Rigolin and Liantao Wang, *Phys. Rev. Lett.* **86** (2001) 3484.
- [27] “Decoupling properties of MSSM particles in Higgs and top decays” - Howard E. Haber, M.J. Herrero, H.E. Logan, S. Peñaranda, S. Rigolin and D. Temes, **hep-ph/0102169**.
- [28] “Update of golden measurements at a neutrino factory” - S. Rigolin, in *Proc. of the APS/DPF/DPB Summer Study on the Future of Particle Physics (Snowmass 2001)* ed. R. Davidson and C. Quigg, SNOWMASS-2001-P205.
- [29] “E1 working group summary: Neutrino Factories and muon colliders” - T. Adams *et al.*, in *Proc. of the APS/DPF/DPB Summer Study on the Future of Particle Physics (Snowmass 2001)* ed. R. Davidson and C. Quigg, **hep-ph/0111030**.
- [30] “Alternative approach to $b \rightarrow s\gamma$ in the uMSSM” - S. Rigolin, L. Everett, G.L. Kane, L. Wang and T. Wang, *JHEP* **0201**, 022 (2002).
- [31] “Supersymmetric Pati-Salam Models from Intersecting D-Branes” - L. Everett, G. L. Kane, S. King, S. Rigolin and L. T. Wang, *Phys. Lett.* **B531**, 263 (2002).
- [32] “An alternative approach to $b \rightarrow s\gamma$ in the unconstrained MSSM” - S. Rigolin, **hep-ph/0204169**.
- [33] “Oscillation physics with a neutrino factory” - M. Apollonio *et al.*, CERN Yellow Report, **hep-ph/0210192**.
- [34] “Clone flow analysis for a theory inspired neutrino experiment planning” - A. Donini, D. Meloni and S. Rigolin, *JHEP* **0406**, 011 (2004).
- [35] “Study of the Eightfold Degeneracy with a Standard Beta-Beam and a Super-Beam Facility” - A. Donini, E. Fernandez-Martinez, P. Migliozzi, S. Rigolin, L. Scotto Lavina, *Nucl. Phys.* **B710** (2005) 402.
- [36] “Why care about (θ_{13}, δ) degeneracy at future neutrino experiments” - S. Rigolin, **hep-ph/0407009**.
- [37] “Appearance and disappearance signals at a β -beam and a super-beam facility” - A. Donini, E. Fernandez-Martinez and S. Rigolin, *Phys. Lett.* **B621** (2005) 276.
- [38] “Degeneracies at a β -beam and a super-beam facility” - S. Rigolin, *Nucl. Phys. Proc. Suppl* **145** (2005) 203.
- [39] “The impact of solar and atmospheric parameter uncertainties on the measurement of θ_{13} and δ ” - A. Donini, D. Meloni and S. Rigolin, *Eur. Phys. J.* **C45**, 73 (2006).
- [40] “Physics reach of β -beams and ν -factories: the problem of degeneracies” - S. Rigolin, *Nucl. Phys. Proc. Suppl*, **155**, 33 (2006) .
- [41] “ ν_{μ} disappearance at the SPL, T2K-I and the neutrino factory” - A. Donini, E. Fernandez-Martinez and S. Rigolin, *Nucl. Phys. Proc. Suppl*, **155**, 176 (2006).
- [42] “Perspectives for a neutrino program based on the upgrades of the CERN accelerator complex,” - A. Donini *et al.*, **hep-ph/0511134**.
- [43] “ ν_{μ} disappearance at the SPL, T2K-I, NO ν A and the neutrino factory” - A. Donini, E. Fernandez-Martinez, D. Meloni and S. Rigolin, *Nucl. Phys.* **B743**, 41 (2006).
- [44] “A European Neutrino Program Based On The Machine Upgrades Of The LHC” - A. Donini *et al.*, PoS **HEP2005** (2006) 178.
- [45] “A beta beam complex based on the machine upgrades of the LHC” - A. Donini *et al.*, *Eur. Phys. J.* **C48** (2006) 787.
- [46] “Phenomenology of symmetry breaking from extra dimensions” - J. Alfaro, A. Broncano,

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