

# MASSIMILIANO RINALDI

PhD (UC Dublin), MSc (Bologna U)

Department of Physics, University of Trento,  
Via Sommarive 14, 38123 Povo (TN), Italy,  
Ph: +39 0461281577,  
<https://webapps.unitn.it/du/it/Persona/PER0172757/Curriculum>  
[massimiliano.rinaldi@unitn.it](mailto:massimiliano.rinaldi@unitn.it)

---

## Education

- 11 Dec 2003      Ph.D. in Mathematical Physics, University College Dublin, Ireland.  
Supervisor: Dr. Danny Birmingham.  
Title of the thesis: “Topological black holes in anti-de Sitter spacetime”.
- 19 Mar 1999      M.Sc. in Physics, University of Bologna, Italy.  
Supervisor: Prof. Roberto Balbinot.  
Title of the MSc thesis: “Energy conditions in dilatonic models of gravity”.  
Final score: 110/110.

---

## Current positions

- Assistant Professor (Tenure-Track), Physics Department, University of Trento (since Nov. 2, 2016)
- Associated researcher INFN (National Institute for Nuclear Physics), Italy.

---

## Previous appointments

- 01 Dec 2013 - 31 Oct 2016 : Postdoctoral researcher, University of Trento, Italy.
- 01 Nov 2011 - 30 Nov 2013 : Postdoctoral researcher, University of Namur, Belgium.
- 01 Jan 2011 - 31 Oct 2011 : High school teacher, Istituto professionale “R. Corso”, Correggio, Italy.
- 01 Sep 2008 - 31 Dec 2010 : Postdoctoral researcher, University of Geneva, Switzerland.
- 01 Jan 2006 - 31 Dec 2007 : Postdoctoral researcher, University of Bologna, Italy.
- 01 Sep 2003 - 30 Jun 2006 : Fixed-term Lecturer, full time, University College Dublin, Ireland.

---

## Short visiting positions

- 02 Jun 2018 - 16 Jun 2018 : Visitor McMaster U. and Perimeter Institute, Ontario.
- 01 May 2008 - 31 Jul 2008 : Visitor, University of Valencia, Spain.
- March 2008 : Invited visitor at Perimeter Institute (2 weeks), Canada.
- 01 Feb 2008 - 30 Apr 2008 : Invited visitor, University of Geneva, Switzerland.
- 01 Dec 2007 - 31 Dec 2007 : Visitor, University of Maryland (T. Jacobson’s group), USA.
-

---

**Service**

- Since 2018 Elected member of the “Giunta di Dipartimento” (Executive Board) of the Physics Department.
- Since 2017 Member of the “Collegio Docenti” (Doctoral School Board) of the Physics Department.

---

**Examination committees**

- 2018 Member of the evaluation committee for the doctoral degree of Mr. M. Tuveri, University of Cagliari (supervisor Prof. M. Cadoni).
- 2009 Member of the evaluation committee for the doctoral degree of Mr. Iván Agulló Rodenas, University of Valencia.

---

**Professional qualifications**

- 13 Jul 2018 Qualified as “Professore di I fascia” (Full Prof), Section 02/A2 - Theoretical Physics of Fundamental Interactions, Italian Ministry of Research and Education.
- 11 Jul 2018 Qualified as “Professore di II fascia” (Associate Prof), Section 02/C1 - Astronomy, Astrophysics, Physics of the Earth and of Planets, Italian Ministry of Research and Education.
- 04 Feb 2015 Qualification “Professeur des Universités” (full professor), Section 34 (Astronomy and Astrophysics), Ministère de l’Enseignement Supérieure et de la Recherche, France.
- 05 Feb 2015 Qualification “Maître de Conference” (associate professor), Section 34 (Astronomy and Astrophysics), Ministère de l’Enseignement Supérieure et de la Recherche, France.
- 28 Jan 2015 Qualification “Maître de Conference” (associate professor), Sections 29 (Elementary Particles), Ministère de l’Enseignement Supérieure et de la Recherche, France.
- 21 Jan 2015 Qualified as “Professore di II fascia” (Associate Prof), Section 02/A2 - Theoretical Physics of Fundamental Interactions, Italian Ministry of Research and Education.
- 2000 Qualified, by State examination, as physics teacher for secondary schools.

---

**Editorial and refereeing activities**

- 2018-now Editor for the European Physics Journal Plus (EPJP), Springer.
- 2016 Awarded of the title “distinguished EPJ referees” by the The European Physical Journal Steering Committee.
- 2010 Appointed referee for grant applications, Research Council for Natural Sciences and Engineering at the Academy of Finland.
- 2001 - Now Referee for Classical and Quantum Gravity, General Relativity and Gravitation, Journal of Modern Physics A, Nuovo Cimento, International Journal of Modern Physics D, Physical Review D, Physical Review Letters, European Physics Letters, Physics Letters A & B, European Physics Journal Plus, Universe, Physics of the Dark Universe.

---

**Memberships**

- 2018 - now Member of the “Gruppo Nazionale di Fisica Matematica - INdAM”.
- 2013 - now Member of the INFN Network “Flag” (Field Theories of Gravity, Cosmology and Black Holes).

2010 - now      Founding Member of the Euclid Science Theory Group, supporting the ESA mission “Euclid” scheduled for launch in 2020.

---

### Event management

2017      Secretary of the Local Organization Committee for the “103° Congresso della Società Italiana di Fisica”, 11-16 September 2017 Trento, Italy. Managed budget of about EUR 50.000, (~ 600 participants)  
<http://events.unitn.it/sif2017>

2016      Local organiser of the international workshop “II FLAG Meeting: The quantum and gravity”, 6-8 June 2016, Trento Italy (~ 60 participants)  
<http://agenda.infn.it/event/flag2016>

---

### Fundings and awards

Dec 2017      Competitive travel funding for internationalisation, University of Trento (EUR 2.500).

Dec 2017      “Finanziamento delle attività base di ricerca” (FFABR - Fundamental Research Funding), Italian Ministry for Research and University (EUR 3.000).

08 Jan 2008      “Marco Polo” grant (EUR 3.450) awarded by competitive selection the University of Bologna to support a three-month visit in the Physics Department of the University of Valencia.

01 Oct 2007      “G. Puppi - WSF Award for New Talents - 2007”, motivated by “his original study on modified dispersion relations and trans-Planckian physics” (EUR 2.000)

05 Sept 2007      45th International School of Subnuclear Physics, Erice, Italy, “New Talent Award” for the presentation on “Modified dispersion relations and trans-Planckian physics.”

11 May 2001      Two-year grant (EUR 25.800) to support doctoral studies abroad, obtained by competitive selection from the University of Bologna , DR 504.

1999      Three-years grant (EUR 15.000) awarded by Enterprise Ireland (BR/1999/031).

Sept 1995      One semester spent at the University College Dublin, supported by an Erasmus studentship.

---

### Academic teaching experience

Since 2018      Lecturer of “Mathematical Methods for Physics”, BSc course (2nd year), University of Trento.

Since 2017      Lecturer of “General Relativity and Cosmology”, MSc course, University of Trento.

2014 - 2016      Teaching assistant for the “Physics I” courses of the BSc in Engineering and the BSc in Mathematics, U. of Trento.

2012 - 2014      Lecturer (2 years) of “Compléments de mathématiques” (aka Mathematical methods for quantum mechanics, 30 hrs, BSc level, in French), U. of Namur.

2010      Scientific demonstrator (1 semester) for “PhysiScope”, a pedagogical physics lab designed for children and teenagers, U. of Geneva.

2009 - 2010      Teaching assistant of “Champs et Particules” (Prof. M. Maggiore), U. of Geneva.

2008 - 2009      Teaching assistant of “Relativité Générale” (Prof. R. Durrer), U. of Geneva.

2003 - 2006      Lecturer (3 years), University College Dublin. Taught courses per year:

- Quantum Field Theory (40 hrs, MSc level),

- Differential Geometry (30 hrs, BSc level 4th yr),
- Quantum Mechanics (30 hrs, BSc level 3rd yr),
- Dynamical Systems and Chaos (30 hrs, BSc level 3rd yr).

1999 - 2003 Demonstrator for several undergraduate Engineering and Science courses, UCD.

---

### PhD students

2017-2020 PhD Advisor of A. Casalino, (U. of Trento).  
 2017-2020 PhD Advisor of L. Giacomelli, (U. of Trento).  
 2012-16 Member of the “Comité d’accompagnement” of S. Schloegel, (U. of Namur).

---

### Master thesis

2017 MSc Thesis Supervisor: “The role of Yang-Mills fields in Higgs inflation”, by L. Boco, (U. of Trento).  
 2017 MSc Thesis Supervisor: “Cosmological perturbation in Horndeski gravity: a case study” by A. Casalino (U. of Trento).  
 2017 MSc Thesis Supervisor: “Electromagnetic Generation of Standing Gravitational Waves” by M. Quaglia (U. of Trento).  
 2017 MSc Thesis Supervisor: “Rotating acoustic black holes in relativistic analogue gravity” by L. Giacomelli (U. of Trento).  
 2016 MSc Thesis Co-Supervisor: “Scale invariance symmetry breaking with applications in Inflation and Reheating” by G. Tambalo (U. of Trento).  
 2013 MSc Thesis Co-Supervisor: “Trous noirs et gravitation analogue: étude du rayonnement de Hawking” by F. Postic (U. of Namur).  
 2009 MSc Thesis Co-Supervisor: “Perturbations and particle creation in non-commutative inflation” by H. Perrier (U. of Geneva).  
 2004 MSc Thesis Supervisor: “Energy Conditions of a Self Dual Solution of the String Cosmology”, by S. Laffoy (UC Dublin).

---

### Selected talks given in international conferences and workshops

2018 “Scale invariant gravity, black holes and inflation”, plenary speaker, Modern aspects of gravity and cosmology, October 2-4, 2018, Orsay, France.  
 2018 “Scale invariant gravity”, plenary speaker, SIGRAV2018, S. Margherita di Pula, Cagliari, September 9-15, Italy.  
 2017 “Scale invariant inflation”, Modified Gravity Day, University of Padova, June 16, Italy.  
 2016 “The Einstein-Higgs-Yang-Mills equations as a solution to the Dark Energy problem”, A Century of General Relativity. In the era of Gravitational Wave, September 12-18, Cefalù, Italy.  
 2015 “Dark energy as a fixed point of the Einstein Yang-Mills Higgs equations”, 28th Texas Symposium on Relativistic Astrophysics, December 13-18, Geneva, Switzerland.  
 2015 “Quasi Scale-Invariant Inflationary Attractors”, 14th Marcel Grossmann Meeting, July 12-18, 2015, Rome, Italy.

- 2015 “Higgs Dark energy”, Euclid Theory and Simulations Working Group Meeting, January 12-13, 2015, Oslo, Norway.
- 2014 “Inflation from scale-invariant gravity”, XXI SIGRAV Conference, U. of Piemonte Orientale, September 15-19, Alessandria, Italy.
- 2014 “Higgs met Einstein”, First Flag Meeting “The Quantum and Gravity”, May 28-30, Bologna, Italy.
- 2014 “The Dark Aftermath of Higgs inflation”, Euclid Consortium Meeting, May 5-9, Marseille, France.
- 2014 “Higgs met Einstein”, Workshop on “Problemi Attuali di Fisica Teorica”, April 11-16, Vietri, Italy.
- 2013 “Higgs Monopoles”, 2nd Mediterranean Conference on Classical and Quantum Gravity (2nd MCCQG), June 9-15, Veli Losinj, Croatia.
- 2012 “Higgs Inflation”, mini-workshop “Higgs search in Belgium”, November 22, CP3 Louvain-la-Neuve, Belgium.
- 2012 “Black Holes in the Lab”, Annual Meeting of the FNRS Graduate School “COMPLEX”, May 25, ULB, Bruxelles, Belgium.
- 2012 “Cosmology at the Louvain Academy”, Euclid Science Working Groups Meeting, May 16, Copenhagen, Denmark.
- 2009 “Living in a rough (space)time”, JLAC13, November 24, Genève, Switzerland.
- 2007 “QFT on curved space-time with modified dispersion relations”, Ist Workshop on Black Holes and Modified Gravity, Department of Theoretical Physics/IFIC, December 17-21, Universitat de Valencia, Spain.
- 2007 “Modified Dispersion Relations and Transplanckian Physics”, 45th International School of Subnuclear Physics, Aug 29 - Sep 7, Erice, Italy.
- 2006 “Self-T-dual Brane Cosmology”, 11th Marcel Grossmann Meeting, July 23 - 29, Berlin, Germany.

---

**Selected invited seminars**

- 18 July 2018 “Scale-invariant inflation”, CEICO, Czech Republic.
- 18 Jan 2018 “Higgs Dark Energy”, University of Modena and Reggio Emilia, Italy.
- 13 Jun 2017 “Scale-invariant gravity and inflation”, Oskar Klein Center, Stockholm, Sweden.
- 24 Jan 2017 “The scale-invariant Universe”, Institute of Physics, University of Helsinki, Finland.
- 21 May 2015 “Higgs Dark Energy”, Department of Astronomy and Theoretical Physics, University of Lund, Sweden.
- 09 Dec 2014 “Inflation from scale-invariant gravity”, Dipartimento di Fisica & Astronomia, Università di Bologna, Italy.
- 29 Jan 2014 “When Higgs met Einstein”, Department of Physics, University of Helsinki, Finland.
- 16 Dec 2013 “When Higgs met Einstein”, Dipartimento di Fisica, Università di Bologna, Italy.
- 08 Nov 2012 “Entropy of acoustic black holes”, SISSA, Trieste, Italy.
- 23 Nov 2010 “Acoustic Black Holes”, Vienna University of Technology, Austria.

20 May 2010	“Phenomenological aspects of a minimal length in quantum field theory on curved space”, LAPTh, Annecy, France.
19 Apr 2010	“Phenomenological aspects of a minimal length in quantum field theory on curved space”, IAP and CEA - Saclay, Paris, France.
16 Nov 2009	“Living in a rough (space)time”, Spinoza Institute, University of Utrecht, The Netherlands.
24 Apr 2008	“Modified dispersion relations and renormalization”, Perimeter Institute, Waterloo, Canada <sup>1</sup> .
09 Apr 2008	“Einstein-Aether theory, trans-Planckian problem, and renormalization”, C.E.R.N. - Theory Division, Geneva, Switzerland.
18 Oct 2007	“Trans-Planckian problem and modified dispersion relations”, School of Mathematical Sciences, University College Dublin, Ireland.
16 Nov 2006	“Modified dispersion relations in semiclassical gravity”, School of Mathematical Sciences, University College Dublin, Ireland.
01 Dec 2006	“Late-time brane cosmology: a new no-go theorem?”, Département de Physique Théorique, Université de Genève, Switzerland
19 May 2005	“Self-T-dual Brane Cosmology”, Institute of Cosmology and Gravitation, Portsmouth, UK.

---

#### Main public talks and outreach activities

2017 - now	Coordinator of “Fisicittà”, an organisation born to create scientific events in Trento <sup>2</sup>
05 Mar 2018	Public talk “Un secolo di relatività”, Liceo Prati, Trento, Italy.
09 Feb 2018	High-school level seminar “Un secolo di relatività”, Istituto Fermi, Mantova, Italy.
09 Jan 2017	Popular seminar “Einstein, buchi neri e onde gravitazionali”, Università della Libera Età, Novellara, Italy.
17 Oct 2016	Popular seminar “Da Einstein alle onde gravitazionali”, Associazione Culturale Ap-penappena, Carpi, Italy.
04 Jun 2016	High-school level seminar “Il secolo breve della fisica”, open day of the Liceo Torricelli, Bolzano, Italy.
2 May 2016	Scientific presentation, Montessori primary school, Carpi, Italy.
2016	Contributor to the Outreach Euclid Website (in preparation).
Oct 2012	Scientific guide for the science fair “L’Univers: face A / face B” held in Namur.
Jun 2010	Scientific guide for the science fair “Fête de la Science” held in Geneva.

---

<sup>1</sup>Video available at <http://www.perimeterinstitute.ca/videos/trans-planckian-physics-and-renormalization>

<sup>2</sup>[www.facebook.com/sif2017trento/](http://www.facebook.com/sif2017trento/).

## Scientific Publications

---

1. M. Rinaldi, “On the equivalence of Jordan and Einstein frames in scale-invariant gravity,” arXiv:1808.08154 [gr-qc], to appear in “European Physics Journal Plus”
2. A. Casalino and M. Rinaldi, “Testing Horndeski gravity as dark matter with `hi_class`,” arXiv:1807.01995 [gr-qc], submitted for publication
3. A. Cisterna, C. Erices, X. M. Kuang and M. Rinaldi, “Axionic black branes with conformal coupling,” Phys. Rev. **D 97**, (2018) no.12, 124052
4. M. Rinaldi, L. Sebastiani, A. Casalino and S. Vagnozzi, “Mimicking dark matter and dark energy in a mimetic model compatible with GW170817,” arXiv:1803.02620 [gr-qc], to appear in “Physics Of The Dark Universe”
5. M. Calzà, M. Rinaldi and L. Sebastiani, “A special class of solutions in  $F(R)$ -gravity,” Eur. Phys. J. C **78** (2018) no.3, 178
6. A. Cisterna, M. Hassaine, J. Oliva and M. Rinaldi, “Axionic black branes in the k-essence sector of the Horndeski model,” Phys. Rev. D **96** (2017) no.12, 124033
7. G. Tambalo and M. Rinaldi, “Inflation and reheating in scale-invariant scalar-tensor gravity,” Gen. Rel. Grav. **49** (2017) no.4, 52
8. A. Cisterna, M. Hassaine, J. Oliva and M. Rinaldi, “Static and rotating solutions for Vector-Galileon theories,” Phys. Rev. D **94** (2016) no.10, 104039
9. M. Rinaldi, “Mimicking dark matter in Horndeski gravity,” Phys. Dark Univ. **16** (2017) 14
10. L. Amendola *et al.*, “Cosmology and fundamental physics with the Euclid satellite,” Living Rev. Rel. **21** (2018) no.1, 2
11. A. Cisterna, T. Delsate, L. Ducobu and M. Rinaldi, “Slowly rotating neutron stars in the nonminimal derivative coupling sector of Horndeski gravity,” Phys. Rev. D **93** (2016) no.8, 084046
12. M. Rinaldi and L. Vanzo, “Inflation and reheating in theories with spontaneous scale invariance symmetry breaking,” Phys. Rev. D **94** (2016) no.2, 024009
13. P. Bull *et al.*, “Beyond  $\Lambda$ CDM: Problems, solutions, and the road ahead,” Phys. Dark Univ. **12** (2016) 56
14. M. Rinaldi, “Dark energy as a fixed point of the Einstein Yang-Mills Higgs Equations,” JCAP **1510** (2015) no.10, 023 <sup>3</sup>
15. “Quasi Scale-Invariant Inflationary Attractors,” Proceedings of the MG14 Meeting on General Relativity, Rome 2015, [https://doi.org/10.1142/9789813226609\\_0096](https://doi.org/10.1142/9789813226609_0096)
16. G. Cognola, M. Rinaldi and L. Vanzo, “Scale-invariant rotating black holes in quadratic gravity,” Entropy **17** (2015) 5145
17. M. Rinaldi, L. Vanzo, S. Zerbini and G. Venturi, “Inflationary quasiscale-invariant attractors,” Phys. Rev. D **93** (2016) 024040
18. A. Cisterna, T. Delsate and M. Rinaldi, “Neutron stars in general second order scalar-tensor theory: The case of nonminimal derivative coupling,” Phys. Rev. D **92** (2015) no.4, 044050
19. G. Cognola, M. Rinaldi, L. Vanzo and S. Zerbini, “Thermodynamics of topological black holes in  $R^2$  gravity,” Phys. Rev. D **91** (2015) 104004

---

<sup>3</sup>Article feature in the INAF webzine [www.media.inaf.it/2015/11/05/dark-energy-einstein/](http://www.media.inaf.it/2015/11/05/dark-energy-einstein/)

20. M. Rinaldi, G. Cognola, L. Vanzo and S. Zerbini, “Inflation in scale-invariant theories of gravity,” *Phys. Rev. D* **91** (2015) no.12, 123527
21. M. Rinaldi, G. Cognola, L. Vanzo and S. Zerbini, “Reconstructing the inflationary  $f(R)$  from observations,” *JCAP* **1408** (2014) 015
22. S. Schlogel, M. Rinaldi, F. Staelens and A. Fuzfa, “Particlelike solutions in modified gravity: the Higgs monopole,” *Phys. Rev. D* **90** (2014) no.4, 044056
23. M. Rinaldi, “Higgs Dark Energy,” *Class. Quant. Grav.* **32** (2015) 045002
24. M. Rinaldi, “The dark aftermath of Higgs inflation,” *Eur. Phys. J. Plus* **129** (2014) 56
25. R. Durrer, G. Marozzi and M. Rinaldi, “Comment on “Origin of Cosmic Magnetic Fields”,” *Phys. Rev. Lett.* **111** (2013) 229001
26. A. Füzfa, M. Rinaldi and S. Schlögel, “Particlelike distributions of the Higgs field nonminimally coupled to gravity,” *Phys. Rev. Lett.* **111** (2013) no.12, 121103 <sup>4</sup>.
27. H. Perrier, R. Durrer and M. Rinaldi, “Explosive particle production in non-commutative inflation,” *JHEP* **1301** (2013) 067
28. M. Rinaldi, “Black holes with non-minimal derivative coupling,” *Phys. Rev. D* **86** (2012) 084048
29. L. Amendola *et al.* [Euclid Theory Working Group], “Cosmology and fundamental physics with the Euclid satellite,” *Living Rev. Rel.* **16** (2013) 6
30. J. P. Bruneton, M. Rinaldi, A. Kanfon, A. Hees, S. Schlogel and A. Fuzfa, “Fab Four: When John and George play gravitation and cosmology,” *Adv. Astron.* **2012** (2012) 430694
31. M. Rinaldi, “Aspects of Quantum Gravity in Cosmology,” *Mod. Phys. Lett. A* **27** (2012) 1230008
32. M. Rinaldi, “The entropy of an acoustic black hole in Bose-Einstein condensates: transverse modes as a cure for divergences,” *Int. J. Mod. Phys. D* **22** (2013) 1350016
33. M. Rinaldi, “The entropy of an acoustic black hole in Bose-Einstein condensates,” *Phys. Rev. D* **84** (2011) 124009
34. G. Marozzi, M. Rinaldi and R. Durrer, “On infrared and ultraviolet divergences of cosmological perturbations,” *Phys. Rev. D* **83** (2011) 105017
35. M. Rinaldi, “Observational Signatures of Pre-Inflationary and Lower-Dimensional Effective Gravity,” *Class. Quant. Grav.* **29** (2012) 085010
36. C. Mayoral, A. Fabbri and M. Rinaldi, “Step-like discontinuities in Bose-Einstein condensates and Hawking radiation: dispersion effects,” *Phys. Rev. D* **83** (2011) 124047
37. M. Rinaldi, “Particle Production and Transplanckian Problem on the Non-Commutative Plane,” *Mod. Phys. Lett. A* **25** (2010) 2805
38. P. Nicolini and M. Rinaldi, “A Minimal length versus the Unruh effect,” *Phys. Lett. B* **695** (2011) 303
39. M. Rinaldi, “A New approach to non-commutative inflation,” *Class. Quant. Grav.* **28** (2011) 105022
40. R. Durrer, G. Marozzi and M. Rinaldi, “On Adiabatic Renormalization of Inflationary Perturbations,” *Phys. Rev. D* **80** (2009) 065024
41. R. Durrer and M. Rinaldi, “Graviton production in non-inflationary cosmology,” *Phys. Rev. D* **79** (2009) 063507
42. M. Rinaldi, “A Momentum-space representation of Green’s functions with modified dispersion relations on general backgrounds,” *Phys. Rev. D* **78** (2008) 024025

---

<sup>4</sup>This paper was featured by the major Belgian newspaper “La Libre Belgique”, see <http://tinyurl.com/qdvsgdp>.



43. M. Rinaldi, “Superluminal dispersion relations and the Unruh effect,” *Phys. Rev. D* **77** (2008) 124029
44. “Modified Dispersion Relations and Transplanckian Physics”, M. Rinaldi, International School of Subnuclear Physics: 45th Course: Searching for the “Totally Unexpected” in the LHC Era, Erice, Italy, 2007. ISBN: 978-981-4293-23-5, [http://dx.doi.org/10.1142/9789814293242\\_0029](http://dx.doi.org/10.1142/9789814293242_0029).
45. M. Rinaldi, “A Momentum-space representation of Green’s functions with modified dispersion on ultra-static space-time,” *Phys. Rev. D* **76** (2007) 104027
46. “Self-T-Dual Brane Cosmology”, M. Rinaldi, Proceedings of the MG11 Meeting on General Relativity, Berlin 2006. ISBN: 978-981-4470-03-2, [http://dx.doi.org/10.1142/9789812834300\\_0534](http://dx.doi.org/10.1142/9789812834300_0534).
47. O. Corradini and M. Rinaldi, “Self-T-dual brane cosmology and the cosmological constant problem,” *JCAP* **0601** (2006) 020
48. M. Rinaldi and P. Watts, “Pre-big bang scenario on self-T-dual bouncing branes,” *JCAP* **0503** (2005) 006
49. M. Rinaldi, “Brane worlds in T dual bulks,” *Phys. Lett. B* **582** (2004) 249
50. M. Rinaldi, “Toroidal black holes and T duality,” *Phys. Lett. B* **547** (2002) 95
51. D. Birmingham and M. Rinaldi, “Bubbles in anti-de Sitter space,” *Phys. Lett. B* **544** (2002) 316
52. D. Birmingham and M. Rinaldi, “Brane world in a topological black hole bulk,” *Mod. Phys. Lett. A* **16** (2001) 1887

---

**Lecture notes**

- “Compléments de Mathématiques” with A. Füzfa, lecture notes (in French), Université de Namur Presse.
  - “General Relativity and Cosmology”, lecture notes, MSc course, University of Trento.
-