

**UNIVERSITÀ DEGLI STUDI DI MILANO**

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## **Giacomo De Palma** **CURRICULUM VITAE**

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### **Executive summary**

I am currently a Marie Skłodowska-Curie Individual Fellow at the Villum Centre of Excellence for the Mathematics of Quantum Theory (QMATH)<sup>1</sup>, hosted by the Department of Mathematical Sciences of the University of Copenhagen. My fellowship proposal has got the score 98,8/100, the highest among the 763 submissions in the Physics panel in the 2017 call. My main research area lies at the intersection of quantum information and mathematical physics. I have achieved outstanding research results culminated in the proof of the quantum Entropy Power Inequality and of the minimum output entropy conjecture for one-mode quantum Gaussian channels, a longstanding conjecture in quantum communication which was open since 2007. My expertise is not limited to this area: I have recently started working on machine learning, and my background also includes string theory and non-perturbative quantum field theory. I have published my results in top journals including Communications in Mathematical Physics, Annales Henri Poincaré, IEEE Transactions on Information Theory, Letters in Mathematical Physics, Nature Photonics, Physical Review Letters, Annals of Physics, Journal of Physics A: Mathematical and Theoretical and Journal of Mathematical Physics. I have presented my results in talks at leading conferences such as the International Congress on Mathematical Physics and the Annual Conference on Quantum Information Processing, the world most prestigious conferences in mathematical physics and quantum information, respectively. I have built international collaborations with world leading researchers including Prof. Luigi Ambrosio (Scuola Normale Superiore, Pisa, Italy), Prof. Alexander Holevo (Steklov Mathematical Institute, Moscow, Russia) and Prof. Seth Lloyd (MIT, Cambridge MA, USA), that I visited for three months. I have also shown that I can work independently (four single-authored papers).

I have got the Italian National Scientific Qualification for Associate Professorship in Mathematical Physics (01/A4) in 2018. My Marie Curie Fellowship strengthened by a tenure track position will be a springboard to build my own research group with an application to an ERC Starting Grant in the 2020 call.

### **Employment**

- 4/2018 – present    Marie Skłodowska-Curie Individual Fellow at the Villum Centre of Excellence for the Mathematics of Quantum Theory, hosted by the Department of Mathematical Sciences of the University of Copenhagen<sup>2</sup>, Grant Agreement No. 792557  
Supervisor Prof. Jan Philip Solovej; Co-supervisor Prof. Matthias Christandl  
Salary: 82697,40€ gross per year  
Highest score (98,8/100) among the 763 submissions in the Physics panel in the 2017 call
- 10/2016 – 3/2018    Postdoc at the Villum Centre of Excellence for the Mathematics of Quantum Theory, hosted by the Department of Mathematical Sciences of the University of Copenhagen. Centre leaders: Profs. Jan Philip Solovej, Matthias Christandl and Bergfinnur Durhuus  
Salary: 497767 DKK (66830€) gross per year

<sup>1</sup> <http://qmath.ku.dk/>

<sup>2</sup> [https://cordis.europa.eu/project/rcn/215070\\_en.html](https://cordis.europa.eu/project/rcn/215070_en.html)

## Education

2013 - 2016	PhD in Physics at Scuola Normale Superiore (Pisa, Italy) awarded cum laude on 12 Sep 2016, thesis “Gaussian optimizers and other topics in quantum information”, supervisor Prof. Vittorio Giovannetti
2014	“Diploma di licenza” in Physics at Scuola Normale Superiore, 70/70 cum laude, dissertation “A generalization of the entropy power inequality to bosonic quantum systems” published in Nature Photonics, supervisor Prof. Vittorio Giovannetti
2013	MSc in Physics at University of Pisa, 110/110 cum laude, thesis “A window on AdS strings from free String Field Theory”, supervisors Prof. Augusto Sagnotti and Dr. Dario Francia
2011	BSc in Physics at University of Pisa, 110/110 cum laude, thesis “Strings and higher spins”, supervisor Prof. Augusto Sagnotti
2008	First place in entrance exam to the Faculty of Mathematical and Natural Sciences of Scuola Normale Superiore
2007	Gran Sasso / Princeton physics summer school <sup>3</sup> , Princeton University, Princeton (USA), 25 Jul - 15 Aug, fully funded by Regione Abruzzo

## Funding

- Marie Skłodowska-Curie Individual Fellowship GENIUS, Grant Agreement No. 792557 (200194,80€). Highest score (98,8/100) among the 763 submissions in the Physics panel in the 2017 call.
- Scientific collaboration with Scuola Normale Superiore on the topic “Gaussian optimizers in quantum information”, 20-30 Sep 2016 (785€)
- 3-year PhD scholarship at Scuola Normale Superiore (51514.56€ + 7500€ travel money + full board)
- 5-year BSc and MSc scholarship at Scuola Normale Superiore (6400€ + 2000€ travel money + reimbursement of the tuition fees of the University of Pisa + full board and lodging)

## Prizes and awards

- Italian National Scientific Qualification for Associate Professorship in Mathematical Physics (01/A4), 13 Jul 2018
- “Best young Italian Researcher in Denmark” (BIRD) prize 2018 awarded by the Italian Embassy in Copenhagen and the Italian Institute of Culture in Copenhagen as the winner for innovative research in Physical and Engineering Sciences
- Special mention at the 2017 Fubini prize for the PhD thesis awarded by INFN (Istituto Nazionale di Fisica Nucleare)
- Silver medal at the 39th International Physics Olympiad<sup>4</sup>, Hanoi (Vietnam), 20-29 July 2008
- Certificate of Merit for Successful Completion of the Gran Sasso – Princeton Physics Summer School

## Teaching

- Teaching Assistant for the 7,5 ECTS course “Introduction to Representation Theory” for the MSc and PhD in Mathematics of the Department of Mathematical Sciences of the University of Copenhagen in the academic year 2018/19
- Teaching Assistant for the 7,5 ECTS course “Lie Groups” for the MSc and PhD in Mathematics of the Department of Mathematical Sciences of the University of Copenhagen in the academic year 2017/18
- Tutor for the 14 ECTS undergraduate course on classical mechanics and thermodynamics at Scuola Normale Superiore in the academic years 2013/14 and 2014/15

## Contribution to the supervision of PhD students

- Bobak Toussi Kiani, Massachusetts Institute of Technology (Cambridge MA, USA)
- Stefan Huber, Technische Universität München (Garching, Germany)
- Matteo Rosati, Scuola Normale Superiore (Pisa, Italy)

## Conference organization

- Organizer of the master class “Quantum communication and computation with continuous variables”, Copenhagen (Denmark), 17-21 Jun 2019
- Chairman for the 12th Conference on the Theory of Quantum Computation, Communication, and Cryptography, Paris (France), 14-16 Jun 2017

<sup>3</sup> <http://www.physics.princeton.edu/www/legacy/gransasso2007>

<sup>4</sup> [en.wikipedia.org/wiki/International\\_Physics\\_Olympiad](http://en.wikipedia.org/wiki/International_Physics_Olympiad)

- Scientific Secretary for the 51th international school of subnuclear physics, Erice (TP, Italy), 24 Jun - 3 Jul 2013

#### Press coverage

- “Vincitori del premio “Best young Italian Researcher in Denmark” (B.I.R.D) 2018”, website of the Italian Embassy in Copenhagen, 8 Jun 2018<sup>5</sup>
- “A GENIUS plan for secure communications”, website of the Danish Ministry of Higher Education and Science, 12 Feb 2018<sup>6</sup>. My Marie Curie Fellowship has been selected for publication on the website since it got the highest score in the Physics panel in the 2017 call
- “Dimostrata la versione quanto-meccanica della “Entropy power inequality””, NormaleNews, 5 Dec 2014<sup>7</sup>

#### Outreach

- “Best young Italian Researcher in Denmark”, organized by the Italian Embassy in Copenhagen and the Italian Institute of Culture in Copenhagen, 15 Nov 2018, talk “A quantum plan for secure communication”

#### Peer review

- Journals: Physical Review Letters, Physical Review A, IEEE Transactions on Information Theory, Annals of Physics, New Journal of Physics, Journal of Physics A, Journal of Mathematical Physics, International Journal of Quantum Information, SIAM Journal on Matrix Analysis and Applications, Entropy, American Journal of Physics
- Conferences: Annual Conference on Quantum Information Processing, Conference on the Theory of Quantum Computation, Communication and Cryptography

#### References

- Prof. Jan Philip Solovej (University of Copenhagen, Copenhagen, Denmark), [solovej@math.ku.dk](mailto:solovej@math.ku.dk)
- Prof. Matthias Christandl (University of Copenhagen, Copenhagen, Denmark), [christandl@math.ku.dk](mailto:christandl@math.ku.dk)
- Prof. Vittorio Giovannetti (Scuola Normale Superiore, Pisa, Italy), [vittorio.giovannetti@sns.it](mailto:vittorio.giovannetti@sns.it)
- Prof. Luigi Ambrosio (Scuola Normale Superiore, Pisa, Italy), [luigi.ambrosio@sns.it](mailto:luigi.ambrosio@sns.it)
- Prof. Seth Lloyd (Massachusetts Institute of Technology, Cambridge MA, USA), [slloyd@mit.edu](mailto:slloyd@mit.edu)
- Prof. Alexander S. Holevo (Steklov Mathematical Institute, Moscow, Russia), [holevo@mi.ras.ru](mailto:holevo@mi.ras.ru)

**Hobbies and sports**    cooking, running, skiing, trekking, photography

**Languages**    English C2    French B1    Danish A2

#### Long visits

- Prof. Seth Lloyd, Massachusetts Institute of Technology, Cambridge MA (USA), 24 Sep – 21 Dec 2018

#### Short visits

- Prof. Robert Seiringer, Institute of Science and Technology Austria, Klosterneuburg (Austria), 12-15 Feb 2019
- Prof. Robert König, Technische Universität München, Garching (Germany), 26-30 Nov 2017
- Prof. Seth Lloyd, University of Oxford, Oxford (UK), 13-17 Nov 2017
- Prof. Andreas Winter, Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Barcelona (Spain), 13-17 Feb 2017
- Profs. Jan Philip Solovej and Matthias Christandl, University of Copenhagen, Copenhagen (Denmark), 26-28 Jan 2016
- Prof. Giuseppe Toscani, University of Pavia, Pavia (Italy), 9-12 Mar 2015

#### Invited seminars

- Institute of Science and Technology Austria, Klosterneuburg (Austria), 14 Feb 2019, “The Entropy Power Inequalities with quantum conditioning”
- Institute of Science and Technology Austria, Klosterneuburg (Austria), 13 Feb 2019, “Deep neural networks are biased towards simple functions”
- Massachusetts Institute of Technology, Cambridge MA (USA), 12 Oct 2018, “The Entropy Power Inequalities with quantum conditioning”
- Technische Universität München, Garching (Germany), 27 Nov 2017, “The quantum conditional Entropy Power Inequality and an uncertainty relation with quantum memory for the Wehrl entropy”
- University of Pisa, Pisa (Italy), 19 Sep 2017, “The quantum conditional Entropy Power Inequality”

<sup>5</sup> [https://ambcopenhagen.esteri.it/ambasciata\\_copenaghen/it/ambasciata/news/dall\\_ambasciata/vincitori-del-premio-best-young.html](https://ambcopenhagen.esteri.it/ambasciata_copenaghen/it/ambasciata/news/dall_ambasciata/vincitori-del-premio-best-young.html)

<sup>6</sup> <https://ufm.dk/en/research-and-innovation/funding-programmes-for-research-and-innovation/who-has-received-funding/2018/individual-fellowships-grantees>

<sup>7</sup> <http://normalenews.sns.it/dimostrata-la-versione-quanto-meccanica-della-entropy-power-inequality/>

- University of Copenhagen, Copenhagen (Denmark), 6 Sep 2017, “The Entropy Power Inequality with quantum memory”
- Universitat Autònoma de Barcelona, Cerdanyola del Vallès, Barcelona (Spain), 15 Feb 2017, “Gaussian optimizers in quantum information”
- Scuola Normale Superiore, Pisa (Italy), 23 Sep 2016, “Gaussian optimizers in quantum information”
- University of Copenhagen, Copenhagen (Denmark), 27 Jan 2016, “Gaussian optimizers in quantum information”
- Scuola Normale Superiore, Pisa (Italy), 20 Jan 2016, “Necessity of eigenstate thermalization”
- Scuola Normale Superiore, Pisa (Italy), 2 Dec 2015, “Gaussian optimizers in quantum information”
- University of Pavia, Pavia (Italy), 10 Mar 2015, “A generalization of the Entropy Power Inequality to bosonic quantum systems”
- Scuola Normale Superiore, Pisa (Italy), 26 Feb 2014, “A generalization of the Entropy Power Inequality to bosonic quantum systems”

#### **Invited talks**

- Beyond IID in Information Theory 4 Workshop, Barcelona (Spain), 18-22 Jul 2016, “Entropy Photon-Number Inequality”
- Santa Clausius Workshop [Thermodynamics, Cavities, Topology], Scuola Normale Superiore, Pisa (Italy), 17-18 Dec 2014, “Why ETH is necessary and we should not worry about that”

#### **Contributed talks**

- XIX International Congress on Mathematical Physics, Montréal (Canada), 23-28 Jul 2018, “The Conditional Entropy Power Inequality for Bosonic Quantum Systems”
- 32nd International Colloquium on Group Theoretical Methods in Physics, Prague (Czech Republic), 9-13 Jul 2018, “The quantum conditional Entropy Power Inequality and a new uncertainty relation for the conditional Wehrl entropy”
- Young Italian Quantum Information Science Conference, University of Florence, Sesto Fiorentino (Florence, Italy), 11 Sep 2017, “Gaussian states minimize the output entropy of one-mode quantum Gaussian channels”
- 24th Central European Workshop on Quantum Optics, Technical University of Denmark, Kongens Lyngby (Denmark), 26-30 Jun 2017, “Gaussian states minimize the output entropy of one-mode quantum Gaussian channels”
- 12th Conference on the Theory of Quantum Computation, Communication, and Cryptography, Paris (France), 14-16 Jun 2017, “Gaussian states minimize the output entropy of one-mode quantum Gaussian channels”
- Fifth Quantum Thermodynamics Conference, Oxford (UK), 13-17 Mar 2017, “Universal locality of quantum thermal susceptibility”
- 20th Annual Conference on Quantum Information Processing, Seattle (Washington, USA), 16-20 Jan 2017, “Gaussian optimizers in quantum information”
- 11th Conference on the Theory of Quantum Computation, Communication, and Cryptography, Berlin (Germany), 27-29 Sep 2016, “Gaussian States Minimize the Output Entropy of the One-Mode Quantum Attenuator”
- Quantum Roundabout Conference, Nottingham (UK), 6-8 Jul 2016, “Gaussian optimizers in quantum information”
- 13th Central European Quantum Information Processing Workshop, Valtice (Czech Republic), 16-19 Jun 2016, “Gaussian optimizers in quantum information”
- Fourth Quantum Thermodynamics Conference, Erice TP (Italy), 8-13 May 2016, “Necessity of eigenstate thermalization”
- The Time Machine Factory, Turin (Italy), 25-28 Oct 2015, “Experiments testing macroscopic quantum superpositions must be slow”
- Non Markovian Quantum Dynamics conference, Cortona AR (Italy), 24-28 Aug 2015, “Necessity of eigenstate thermalization”
- Quantum Roundabout, Nottingham (UK), 29 Jun - 2 Jul 2014, “A generalization of the entropy power inequality to bosonic quantum systems”

#### **Poster presentations**

- International workshop on “Quantum Physics and Geometry”, Levico Terme (Trento, Italy), 4-6 Jul 2017, “The Entropy Power Inequality with quantum memory”
- 23rd Central European Workshop on Quantum Optics, Kolymbari (Crete, Greece), 27 Jun – 1 Jul 2016, “Gaussian optimizers in quantum information”
- International Summer School on Quantum Information, Computing, and Control, Warwick University (UK), 31 Aug - 4 Sep 2015, “Necessity of eigenstate thermalization”
- 12th International Workshop on Quantum Physics and Logic, Oxford (UK), 13-17 Jul 2015, “A generalization of the entropy power inequality to bosonic quantum systems”

- 12th Central European Quantum Information Processing Workshop, Telč (Czech Republic), 18-21 Jun 2015, “Normal form decomposition for Gaussian-to-Gaussian superoperators”
- New Frontiers of Quantum Information Theory, Ascoli Piceno (Italy), 7-11 Jul 2014, “A generalization of the entropy power inequality to bosonic quantum systems”
- 46th Symposium on Mathematical Physics, Toruń (Poland), 15-17 Jun 2014, “A generalization of the entropy power inequality to bosonic quantum systems”

## Publications

Google Scholar profile <https://scholar.google.com/citations?user=yOzFGI0AAAAJ>

Scopus profile <https://www.scopus.com/authid/detail.uri?authorId=55781428900>

- [1] Giacomo De Palma, Bobak Toussi Kiani, Seth Lloyd, “Deep neural networks are biased towards simple functions”, submitted to the thirty-sixth International Conference on Machine Learning, preprint arXiv:1812.10156, <https://arxiv.org/abs/1812.10156>
- [2] Giacomo De Palma, “The Entropy Power Inequality with quantum conditioning”, Journal of Physics A: Mathematical and Theoretical 52(8), 08LT03 (2019), <https://iopscience.iop.org/article/10.1088/1751-8121/aafff4>  
IF 2017: 1,963
- [3] Giacomo De Palma, “New lower bounds to the output entropy of multi-mode quantum Gaussian channels”, submitted to IEEE Transactions on Information Theory, preprint arXiv:1805.12469, <https://arxiv.org/abs/1805.12469>
- [4] Giacomo De Palma, Dario Trevisan, Vittorio Giovannetti, Luigi Ambrosio, “Gaussian optimizers for entropic inequalities in quantum information”, Journal of Mathematical Physics 59(8), 081101 (2018), <https://aip.scitation.org/doi/10.1063/1.5038665>  
IF 2017: 1,165
- [5] Giacomo De Palma, Stefan Huber, “The conditional entropy power inequality for quantum additive noise channels”, Journal of Mathematical Physics 59(12), 122201 (2018), <https://aip.scitation.org/doi/10.1063/1.5027495>  
IF 2017: 1,165
- [6] Giacomo De Palma, Johannes Borregaard, “Minimum error probability of quantum illumination”, Physical Review A 98(1), 012101 (2018), <https://journals.aps.org/pr/abstract/10.1103/PhysRevA.98.012101>  
IF 2017: 2,909
- [7] Giacomo De Palma, “Uncertainty relations with quantum memory for the Wehrl entropy”, Letters in Mathematical Physics 108(9), 2139-2152 (2018), <https://link.springer.com/article/10.1007/s11005-018-1067-y>  
IF 2017: 1,306
- [8] Giacomo De Palma, Dario Trevisan, “The Conditional Entropy Power Inequality for Bosonic Quantum Systems”, Communications in Mathematical Physics 360(2), 639-662 (2018), <https://link.springer.com/article/10.1007%2Fs00220-017-3082-8>  
IF 2017: 2,338
- [9] Giacomo De Palma, Dario Trevisan, Vittorio Giovannetti “Multimode Gaussian optimizers for the Wehrl entropy and quantum Gaussian channels”, preprint arXiv:1705.00499, <https://arxiv.org/abs/1705.00499>
- [10] Giacomo De Palma, “The Wehrl entropy has Gaussian optimizers”, Letters in Mathematical Physics 108(1), 97-116 (2018), <https://link.springer.com/article/10.1007%2Fs11005-017-0994-3>  
IF 2017: 1,306
- [11] Matteo Rosati, Giacomo De Palma, Andrea Mari, Vittorio Giovannetti, “Optimal quantum state discrimination via nested binary measurements”, Physical Review A 95(4), 042307 (2017), <https://journals.aps.org/pr/abstract/10.1103/PhysRevA.95.042307>  
IF 2017: 2,909
- [12] Giacomo De Palma, Antonella De Pasquale, Vittorio Giovannetti, “Universal locality of quantum thermal susceptibility”, Physical Review A 95(5), 052115 (2017), <https://journals.aps.org/pr/abstract/10.1103/PhysRevA.95.052115>  
IF 2017: 2,909

- [13] Giacomo De Palma, Dario Trevisan, Vittorio Giovannetti, "Gaussian states minimize the output entropy of one-mode quantum Gaussian channels", *Physical Review Letters* 118(16), 160503 (2017), <https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.118.160503>  
IF 2017: 8,839
- [14] Giacomo De Palma, Dario Trevisan, Vittorio Giovannetti, "The One-Mode Quantum-Limited Gaussian Attenuator and Amplifier have Gaussian Maximizers", *Annales Henri Poincaré* 19(10), 2919-2953 (2018), <https://link.springer.com/article/10.1007/s00023-018-0703-5>  
IF 2017: 1,740
- [15] Giacomo De Palma, "Gaussian optimizers and other topics in quantum information", PhD thesis defended at Scuola Normale Superiore (Pisa, Italy) on 12 Sep 2016, supervisor Prof. Vittorio Giovannetti, <https://arxiv.org/abs/1710.09395>
- [16] Giacomo De Palma, Dario Trevisan, Vittorio Giovannetti, "Gaussian States Minimize the Output Entropy of the One-Mode Quantum Attenuator", *IEEE Transactions on Information Theory* 63(1), 728-737 (2017), <http://ieeexplore.ieee.org/document/7707386/>  
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- [17] Giacomo De Palma, Andrea Mari, Seth Lloyd, Vittorio Giovannetti, "Passive states as optimal inputs for single-jump lossy quantum channels", *Physical Review A* 93(6), 062328 (2016), <http://journals.aps.org/prl/abstract/10.1103/PhysRevA.93.062328>  
IF 2016: 2,925
- [18] Giacomo De Palma, Dario Trevisan, Vittorio Giovannetti, "Passive States Optimize the Output of Bosonic Gaussian Quantum Channels", *IEEE Transactions on Information Theory* 62(5), 2895-2906 (2016), <http://ieeexplore.ieee.org/document/7442587/>  
IF 2016: 2,679
- [19] Andrea Mari, Giacomo De Palma, Vittorio Giovannetti, "Experiments testing macroscopic quantum superpositions must be slow", *Scientific Reports* 6, 22777 (2016), <http://www.nature.com/articles/srep22777>  
IF 2016: 4,259
- [20] Giacomo De Palma, Alessio Serafini, Vittorio Giovannetti, Marcus Cramer, "Necessity of eigenstate thermalization", *Physical Review Letters* 115(22), 220401 (2015), <https://journals.aps.org/prl/abstract/10.1103/PhysRevLett.115.220401>  
IF 2015: 7,645
- [21] Giacomo De Palma, Andrea Mari, Vittorio Giovannetti, Alexander S. Holevo, "Normal form decomposition for Gaussian-to-Gaussian superoperators", *Journal of Mathematical Physics* 56(5), 052202 (2015), <http://scitation.aip.org/content/aip/journal/jmp/56/5/10.1063/1.4921265>  
IF 2015: 1,234
- [22] Giacomo De Palma, Mattia C. Sormani, "Counterintuitive effect of gravity on the heat capacity of a metal sphere: re-examination of a well-known problem", *American Journal of Physics* 83(8), 723-729 (2015), <http://scitation.aip.org/content/aapt/journal/ajp/83/8/10.1119/1.4922257>  
IF 2015: 1,012
- [23] Giacomo De Palma, Andrea Mari, Seth Lloyd, Vittorio Giovannetti, "Multimode quantum entropy power inequality", *Physical Review A* 91(3), 032320 (2015), <http://journals.aps.org/prl/abstract/10.1103/PhysRevA.91.032320>  
IF 2015: 2,765
- [24] Giacomo De Palma, Andrea Mari, Vittorio Giovannetti, "Classical capacity of Gaussian thermal memory channels", *Physical Review A* 90(4), 042312 (2014), <http://journals.aps.org/prl/abstract/10.1103/PhysRevA.90.042312>  
IF 2014: 2,808
- [25] Giacomo De Palma, Andrea Mari, Vittorio Giovannetti, "A generalization of the entropy power inequality to bosonic quantum systems", *Nature Photonics* 8(12), 958-964 (2014), <http://www.nature.com/nphoton/journal/v8/n12/full/nphoton.2014.252.html>  
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- [26] Giacomo De Palma, "A window on AdS strings from free String Field Theory", MSc thesis defended at the University of Pisa (Pisa, Italy) on 17 Jul 2013, supervisors Prof. Augusto Sagnotti and Dr. Dario Francia, <https://etd.adm.unipi.it/theses/available/etd-06122013-105045/>

[27] Giacomo De Palma, Franco Strocchi, “A non-perturbative argument for the non-abelian Higgs mechanism”, Annals of Physics 336(9), 112-117 (2013), <http://www.sciencedirect.com/science/article/pii/S000349161300122X>  
IF 2013: 3,065

[28] Giacomo De Palma, “Stringhe e spin elevati”, BSc thesis defended at the University of Pisa (Pisa, Italy) on 14 Jul 2011, supervisor Prof. Augusto Sagnotti, <http://www.infn.it/thesis/PDF/getfile.php?filename=8030-De%20Palma-triennale.pdf>

Data

19/02/2019

Luogo

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