

CURRICULUM VITAE

Personal Data

Name: João Miguel Barreto Nestal Esteves

Nationality: Portuguese

Birth Date: 5th June 1967

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MR Author ID: [1113669](https://www.ams.org/author/1113669)

Publons: <https://publons.com/author/1448861/joao-n-esteves#>

Web Page: <https://sites.google.com/view/joaonesteves>

Present Activity

Researcher at *Centro de Análise Matemática, Geometria e Sistemas Dinâmicos, Dep. de Matemática, IST, Lisboa, Portugal*, working on quantization techniques with emphasis on its combinatorial aspects through the use of Hopf algebras.

Academic Degrees

2011 – Ph.D. in Theoretical Physics, *Instituto Superior Técnico*, Lisbon, 28/1/2011, with the thesis “Supersymmetric Models and Neutrino Masses”, under the supervision of Jorge C. Romão.

2007 – Master Degree in Physics (pre-Bologna), *Instituto Superior Técnico*, Lisbon with the thesis “Supersymmetric Models and R-parity violation” and the following curricula:

- Introduction to Field Theory – 5/5 v.
- Advanced Field Theory – 5/5 v.
- Relativity and Cosmology – 5/5 v.
- Elementary Particles – 5/5 v.
- Introduction to Unification Theories – 5/5 v.
- Advanced Topics in Particle Physics II – 5/5 v.

1993 – Graduation in Physics, *Faculdade de Ciências de Lisboa*, 14/20 v. Lisbon

Other Degrees

2000/2001 – Curricula of Master Degree in Applied Mathematics (Geometry and Topology), *Instituto Superior Técnico*:

- Ordinary Differential Equations I – 5/5 v.
- Topics in Geometry and Topology – 4/5v.
- Topics in Numerical Analysis – 5/5 v.
- Ordinary Differential Equations II (extra curricula) – 4/5 v.
- Geometric Mechanics – 5/5 v.
- Differential Geometry – 5/5 v.

- Topics in Ordinary Differential Equations and Dynamical Systems – 5/5v.

Publications

J. N. Esteves, M. Hirsch, J. C. Romão, W. Porod, J. W. F. Valle and A. Villavona del Moral

Flavour violation at the LHC: type I versus type II seesaw in minimal supergravity,

JHEP 05 (2009) 003, arXiv:0903.1408 [hep-ph] (Q1)

[DOI: 10.1088/1126-6708/2009/05/003](https://doi.org/10.1088/1126-6708/2009/05/003)

J. N. Esteves, S. Kaneko, M. Hirsch, J. C. Romão and W. Porod,

Dark Matter in minimal supergravity with type- II seesaw mechanism,

Phys Rev. D 80, 095003 (2009), arXiv:0907.5090 [hep-ph] (Q2)

[DOI: 10.1088/1742-6596/259/1/012066](https://doi.org/10.1088/1742-6596/259/1/012066)

J. N. Esteves, F. R. Joaquim, A. S. Joshipura, J. C. Romão, M. A. Tórtola and J. W. F. Valle,

A₄-based neutrino masses with Majoron decaying dark matter, (2010)

Phys.Rev. D 82 073008 (2010), arXiv:1007.0898 [hep-ph] (Q2)

[DOI: 10.1103/PhysRevD.82.073008](https://doi.org/10.1103/PhysRevD.82.073008)

J. N. Esteves, M. Hirsch, W. Porod, J. C. Romão, F. Staub and A. Vicente, ***LHC and lepton flavour violation phenomenology of a left-right extension of the MSSM,*** JHEP 1012 (2010) 077, arXiv:1011.0348 [hep-ph] (Q1)

[DOI: 10.1007/jhep12\(2010\)077](https://doi.org/10.1007/jhep12(2010)077)

J. N. Esteves, ***Dark matter in minimal supergravity with type-II seesaw, 2010*** J. Phys. Conf. Ser. 259 012066 (Proceedings of PASCOS 2010)

[DOI: 10.1088/1742-6596/259/1/012066](https://doi.org/10.1088/1742-6596/259/1/012066)

J. N. Esteves, M. Hirsch, W. Porod, J. C. Romão and F. Staub, ***Supersymmetric type-III seesaw: lepton flavour violating decays and dark matter,*** Phys. Rev. D 83, 013003 (2011), arXiv:1010.6000 [hep-ph] (Q2)

[DOI: 10.1103/PhysRevD.83.013003](https://doi.org/10.1103/PhysRevD.83.013003)

J. N. Esteves, ***Supersymmetric Models and Neutrino Masses,*** Ph.D. Thesis, IST, Lisbon, [arXiv:1103.1916 \[hep-ph\]](https://arxiv.org/abs/1103.1916)

J. N. Esteves, M. Hirsch, W. Porod, J. C. Romão, F. Staub and A. Vicente, ***Dark matter and LHC phenomenology in a left-right Supersymmetric model,*** JHEP01(2012)095, arXiv:1109.6478v2 [hep-ph] (Q1)

[DOI: 10.1007/JHEP01\(2012\)095](https://doi.org/10.1007/JHEP01(2012)095)

J. N. Esteves, José M. Mourão and João P. Nunes, ***Quantization in singular real polarizations: Kaehler regularization, Maslov correction and pairings,***

arXiv:1501.00112v2 [math-ph] Journal of Physics A: Mathematical and Theoretical (2015), Volume 48, Number 22 (Q1)

[DOI: 10.1088/1751-8113/48/22/22FT01](https://doi.org/10.1088/1751-8113/48/22/22FT01)

J. N. Esteves, **Hopf Algebras and Topological Recursion**, **arXiv:1503.02993**

Journal of Physics A: Mathematical and Theoretical Volume 48 (2015), Number 44 (Q1)

[DOI: 10.1088/1751-8113/48/44/445205](https://doi.org/10.1088/1751-8113/48/44/445205)

J. N. Esteves, **Hopf Algebras and Topological Recursion** in Chiu-Chu Melissa Liu and Motohico Mulase, editors, Proceedings of the 2016 American Mathematical Society von Neumann Symposium on Topological Recursion and its influence on Analysis, Geometry and Topology, AMS, 2018 [arXiv:1709.05857](https://arxiv.org/abs/1709.05857)

Reviews in International Journals

Review by invitation of the editors of [Communications in Mathematical Physics](#) of the paper “[Hopf Algebraic Structure of Tagged Graphs and Topological Recursion](#)”.

Review by invitation of the editors of the [New Journal of Physics](#) of the paper “An [Asymptotic Expansion for the Number of 2-Connected Chord Diagrams](#)”.

International Conferences

1997

- *Summer School on Noncommutative Geometry and Applications*, Monsaraz, Portugal.

2000

- *C.I.M.E. Course on Noncommutative Geometry*, Martina Franca, Italy.

2001

- *Symmetries, from Galois to the Quantum World*, IHES, École Polytechnique, Gif-Sur-Yvette, Paris, France;
- *Geometric Analysis and Index Theory*, Abdus Salam International Center for Theoretical Physics, Trieste, Italy;
- *Workshop on Quantum Field Theory, Noncommutative Geometry and Quantum Probability*, Abdus Salam International Centre for Theoretical Physics, Trieste, Italy;
- *Noncommutative Geometry and Quantum Groups*, Stefan Banach International Mathematical Center, Warsaw, Poland.

2002

- *Rencontre de Géométrie Noncommutative*, IHES, Paris, France.

2003

- *Operator Algebras on Manifold with Singularities*, Institut fuer Mathematik, Potsdam, Germany.

2008

- *PASC Winter School*, Sesimbra, Portugal, with a talk, “Leptogenesis in an A_4 model”.

2009

- *Fourth Graduate School of Physics at Colliders – On the Eve of LHC*, Turin, Italy.
- *School and Workshops on Standard Model and Beyond and Standard Cosmology*, Corfu, Greece.
- *PASC Winter School*, Sesimbra, Portugal, with a talk, “Dark Matter in minimal supergravity with type- II seesaw mechanism”.

2010

- PASCOS 2010, 16th Symposium on Particles, Strings and Cosmology, Valencia, Spain, with a talk “Dark Matter in mSugra with type II seesaw mechanism”.

2012

- XXXI Workshop on Geometric Methods in Physics, 24 June to 30 June 2012, Bialowieza, Poland.
- School on Geometry and Physics, 2 July to 6 July 2012, Bialowieza, Poland.
- XXth Oporto Meeting on Geometry, Topology and Physics, 19 July to 22 July, Oporto, Portugal

2014

- Clay Mathematics Institute Summer School 2014: Periods and Motives in XXI Century, 30 June to 25 July, ICMAT, Madrid, Spain.
<http://www.icmat.es/summerschool2014/>

2016

- AMS 2016 von Neumann Symposium on Topological Recursion, 4th to 8th July, Charlotte, USA, with a talk “Topological Recursion and Hopf Algebras”.
<http://www.ams.org/meetings/amsconf/symposia/symposia-2016>

Seminars (besides the talks mentioned above)

Quantization: a beginner’s perspective, String Group seminar, 12th of March 2012, Math Dep. IST, Lisbon, Portugal,
<http://www.math.ist.utl.pt/seminars/strings/?action=show> [HYPERLINK "http://www.math.ist.utl.pt/seminars/strings/?action=show&id=3064"&](http://www.math.ist.utl.pt/seminars/strings/?action=show&id=3064)
[HYPERLINK "http://www.math.ist.utl.pt/seminars/strings/?action=show&id=3064"](http://www.math.ist.utl.pt/seminars/strings/?action=show&id=3064)
[id=3064](http://www.math.ist.utl.pt/seminars/strings/?action=show&id=3064)

Past Activities:

2001 – Pre-doc fellow in *Département de Mathématiques (Labo. Emile Picard)*, *Université Paul Sabatier*, Toulouse, France, (Jan/Apr and Set/Dec), within the European Network “Geometric Analysis”, studying the Hopf-Connes-Kreimer Algebra of QFT Renormalization.

2002 – Pre-doc fellow in *Département de Mathématiques (Labo. Emile Picard)*, *Université Paul Sabatier*, Toulouse, France, (Jan/Nov), within the European Network “Geometric Analysis”, studying singular spaces.

2003 – Pre-doc fellow in *Dipartimento di Scienze Matematiche, Università Politecnica delle Marche*, Ancona, Italy (Jan/Jul) within the European Network “Geometric Analysis”, studying singular spaces.

2010 – Marie Curie pre-doc fellow at PH-TH/CERN (16th September to 15th December).

2012/2018 - Post-doc at *Centro de Análise Matemática, Geometria e Sistemas Dinâmicos, Dep. de Matemática, IST, Lisboa, Portugal*, working on quantization techniques with emphasis on its combinatorial aspects through the use of Hopf algebras.

1993/2005 (with interruptions) – High School teacher of Physics and Chemistry

Other activities

Photography as an author with online published works in:

[Baixa-Chiado - Fotografias \(quase só\) de Lisboa](#)

[New York - A very short and personal view](#)

[The near west - Pictures from the west region of Portugal](#)

Co-winner of the 2015 photography competition “A Terra como um jardim” promoted by the Gulbenkian Program for Education to Culture and Science, with the photo “Há gaivotas no Universo” exhibited in the Centro Interpretativo Gonçalo Ribeiro Telles” during April 2015, in Fundação Calouste Gulbenkian, Lisbon.

Lisbon, May 2022