Nicola Mosco

Curriculum Vitae

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Academic Positions

2018– **Postdoctoral researcher**, Quantum Information Theory Group, Università degli studi di Pavia, Italy.
Project: *Quantum Simulations*.
Supervisors: Prof. G. M. D'Ariano & Prof. P. Perinotti.

Education

2014–2017 **PhD Course in Physics**, Università degli studi di Pavia, Italy.
Title: *Analytical solutions of the Dirac Quantum Cellular Automata.*
Supervisors: prof. G. M. D'Ariano & prof. P. Perinotti.

2011–2014 **Master's Degree in Physical Sciences**, Università degli Studi di Pavia, Italy, 110/110.
Title: *Exact solution of the Weyl and Dirac Quantum Cellular Automata.*
Supervisors: prof. G. M. D'Ariano & prof. P. Perinotti.

2008–2011 **Bachelor's Degree in Physics**, Università degli Studi di Trieste, Italy, 110/110 cum laude.
Title: *Quantum Discord.*
Supervisor: prof. Fabio Benatti.

Experience

Schools and Conferences

2016 **Conference**, *The International Conference of Physics Students*, IAPS, Malta.
Talk title: *Dirac and Weyl Quantum Walks, The International Conference of Physics Students*, 15 August 2016.

2016 **Conference**, *5th International Conference on New Frontiers in Physics*, Conference Center of the Orthodox Academy of Creta, Kolymbari, Greece.
Talk title: *Analytical and numerical study of Weyl and Dirac Quantum Walks*, 9 July 2016.

2015 **School**, *Lezioni avanzate di campi e stringhe*, Galileo Galilei Institute for Theoretical Physics, Arcetri.

2015 **School**, *24th Summer School on Parallel Computing*, CINECA, Rome.

2011 **Internship**, *Algorithm analyses for charged particles tracking*, INFN, Trieste.

Teaching Experience

2016–2017 Tutorial of the course *Physics II* for mathematics students.

2016–2017 Tutorial of the course *Medical Physics* for medical students.

2015–2016 Tutorial of the course *Mechanics and Thermodynamics – module of Thermodynamics* for physics students.

Other Activities

2015–2017 **UNEW project**, *A Python program for the implementation of the Γ-method for Monte Carlo simulations*, in press, `http://doi.org/10.1016/j.cpc.2018.07.004`.
Paper co-authored with B. De Palma, M. Erba and L. Mantovani (Beto Collaboration), and available in pre-print at `arXiv:1703.02766 [hep-lat]`.
Project repository: `http://bitbucket.org/betocollaboration/unew`.

Awards

2008–2011 Italian Physical Society (SIF) Scholarship.

Computer skills

OS Linux, macOS, Windows.

Software iWork, Office, Wolfram Mathematica, MATLAB.

Programming Languages C/C++, Wolfram Language, Python, Fortran, Julia, Haskell, Swift, Objective-C.

Markup Languages LaTeX, Markdown, HTML.

Languages

Italian Mothertongue

English Advanced

Publications

[1] A. Bisio, G. M. D'Ariano, N. Mosco, P. Perinotti, and A. Tosini. "Solutions of a Two-Particle Interacting Quantum Walk". In: *Entropy* 20.6 (2018). DOI: 10.3390/e20060435.

[2] B. D. Palma, M. Erba, L. Mantovani, and N. Mosco. "A Python program for the implementation of the Γ-method for Monte Carlo simulations". In: *Computer Physics Communications* (2018). DOI: 10.1016/j.cpc.2018.07.004.

[3] G. M. D'Ariano, N. Mosco, P. Perinotti, and A. Tosini. "Path-sum solution of the Weyl quantum walk in 3 + 1 dimensions". In: *Philosophical Transactions of the Royal Society of London A: Mathematical, Physical and Engineering Sciences* 375.2106 (2017). DOI: 10.1098/rsta.2016.0394.

[4] G. M. D'Ariano, N. Mosco, P. Perinotti, and A. Tosini. "Discrete Time Dirac Quantum Walk in 3+1 Dimensions". In: *Entropy* 18.6 (2016), p. 228. DOI: 10.3390/e18060228.

[5] G. M. D'Ariano, N. Mosco, P. Perinotti, and A. Tosini. "Discrete Feynman propagator for the Weyl quantum walk in 2 + 1 dimensions". In: *EPL* 109.4 (2015), p. 40012. DOI: 10.1209/0295-5075/109/40012.

[6] G. M. D'Ariano, N. Mosco, P. Perinotti, and A. Tosini. "Path-integral solution of the one-dimensional Dirac quantum cellular automaton". In: *Physics Letters A* 378.43 (2014), pp. 3165–3168. DOI: 10.1016/j.physleta.2014.09.020.