

Dario Tamascelli

Dr.



4 December 1977



Dipartimento di Fisica
Università degli Studi di Milano
20133 Milano (MI)
Italy



+39 0250317454



[http://www2.fisica.unimi.it/
dario.tamascelli/Home.html](http://www2.fisica.unimi.it/dario.tamascelli/Home.html)



dario.tamascelli@unimi.it

Languages

German

English

Skills

Programming: C-C++

Programming: CUDA

Programming: Python

Programming: Julia

Wolfram Mathematica

Matlab

(*)[The skill scale is from 0 (Fundamental Awareness) to 6 (Expert).]

Professional Position

Since 2014	Visiting Researcher Institut für Theoretische Physik, Ulm Universität	Germany
Since 2014	Assistant Professor Physics Department, Università degli Studi di Milano	Miano
2007-2014	Assistant Professor Computer Science Department, Università degli Studi di Milano	Milano

Education

Mar. 2007	Ph.D. Applied Mathematics (Full Marks) <i>Interacting Quantum Walks</i> (Supervisor: prof. D. de Falco)	Milano
May 2003	M. Sc. magna cum laude Majoring in Computer Science	Milano
2001-02	Erasmus sojourn Branderburgische Technische Universität, Cottbus, Germany.	Germany

Grants and Awards

2007	“PUR”- Università degli Studi di Milano
2009	Young Researcher Starting Grant-Università degli Studi di Milano
2013/15	LISA Grant, CINECA High Performance Computing Center. <i>Design of new material for the reduction of pollutant through quantum and semi-classical computational methods.</i>
2014	“Sviluppo UniMi”-Università degli Studi di Milano, <i>Application of continuous-variable non-classical states for the application in quantum information protocols</i>
2015	“Sviluppo UniMi”-Università degli Studi di Milano, <i>Programmable optical devices for quantum transport</i>
2015	NVIDIA Hardware donation Grant-Università degli Studi di Milano, <i>GPU-Based Time Evolving Block Decimation Algorithm for the simulation of open quantum systems</i>
2016	COST, Short Term Scientific Mission Grant-COST-STSM-ECOST-STSM-MP1403-210216-071740, <i>Simulation of open quantum systems dynamics via Spectral Density decomposition.</i>
2016	“Sviluppo UniMi”-Università degli Studi di Milano, <i>Continuous-variable quantum technology with integrated quantum photonics</i>
2016	TEDDI, CINECA High Performance Computing Center, <i>Time Evolving Density Matrix with Orthogonal Polynomials Algorithm (TEDOPA) for distributed infrastructures</i>
2017	“Sviluppo UniMi”-Università degli Studi di Milano, <i>Continuous-variable open quantum systems with integrated quantum photonics</i>
2018	“Sviluppo UniMi”-Università degli Studi di Milano, <i>Realistic quantum metrology via time-continuous measurements</i>

Research Area

- Simulation of quantum systems
- Quantum biology
- Open quantum systems
- Quantum metrology
- Quantum computation, quantum annealing
- Stochastic processes
- Stochastic modeling of quantum processes
- Density Functional Theory
- GPU Programming

Publications

- 2018 A. Lemmer, C. Cormick, D. Tamascelli, T. Schaetz, S. F. Huelga, M. B. Plenio, A trapped-ion simulator for spin-boson models with structured environments, *New J. Phys*, 20, 073002
- 2018 C. Porto, D. Rusca, S. Cialdi, A. Crespi, R. Osellame, D. Tamascelli, S. Olivares, and M.G.A. Paris, Detection of squeezed light with glass-integrated technology embedded into a homodyne detector setup, *JOSA B*, 35, 1596-1602.
- 2018 D. Tamascelli, A. Smirne, S. F. Huelga, M. B. Plenio, Nonperturbative Treatment of non-Markovian Dynamics of Open Quantum Systems, *Phys. Rev. Lett.*, 120, 030402.
- 2018 L. Kohn, F. Tschirsich, M. Keck, M. B. Plenio, D. Tamascelli, S. Montangero, Probabilistic low-rank factorization accelerates tensor network simulations of critical quantum many-body ground states, *Phys. Rev. E*, 97, 013301.
- 2017 D. Tamascelli, A. Segati, S. Olivares, Dephasing assisted transport on a biomimetic ring structure, *Int. J. Quant. Inf*, 15,1740006.
- 2017 S. Cialdi, M.A.C. Rossi, C. Benedetti, B. Vacchini, DT, S. Olivares, M.G.A. Paris, All-optical quantum simulator of qubit noisy channels, *Appl. Phys. Lett.*, 110, 081107
- 2016 DT, C. Benedetti, S. Olivares, M.G.A. Paris, Characterization of qubit chains by Feynman probes, *Phys. Rev. A*, 94, 042129
- 2016 DT, S. Olivares, S. Rossotti, R. Osellame, M.G.A Paris, Quantum State Transfer via Bloch Oscillations, *Sci. Rep*, 6: 26054
- 2015 DT, R. Rosenbach and M.B. Plenio, Improved scaling of Time-Evolving Block-Decimation algorithm through Reduced-Rank Randomized Singular Value Decomposition, *Phys. Rev. E*, 91: 063306
- 2014 DT and L. Zanetti, A quantum-walk-inspired adiabatic algorithm for graph isomorphism, *J. Phys. A: Math. Theor.*, 42, 325302
- 2014 DT, F.S. Dambrosio, R. Conte, M. Ceotto, Graphics processing units accelerated semiclassical initial value representation molecular dynamics, *J.Chem. Phys.*, 140:174109
- 2013 D. de Falco and DT, Noise-assisted quantum transport and computation, *J. Phys. A: Math. Theor.* 46:225301
- 2012 D. de Falco and DT, Time-dependent density-functional theory for open spin systems, *Phys. Rev. A*, 85:022341
- 2011 D. de Falco and DT, Dissipative dynamics of a spin system with three-body interaction, *J. Phys. A: Math. Theor.*, 44:325303
- 2011 D. de Falco and DT, An Introduction to Quantum Annealing, *RAIRO: Theoretical Informatics and Applications*, 45, 99
- 2011 D. de Falco, E. Pertoso, DT, Dissipative Quantum Annealing, *Proc. 29th Conference: Quantum Probability and White Noise Analysis*, 25. Singapore: World Scientific
- 2009 D. de Falco and DT, Quantum annealing and the Schrödinger-Langevin-Kostin equation, *Phys. Rev. A*, 79:012315
- 2008 D. de Falco and DT, Dynamical kickback and noncommuting impurities in a spin chain, *Int. J. Quant. Inf.*, 6, 807
- 2008 D. de Falco and DT, Quantum Walks: a Markovian perspective. - In: *SOFSEM 2008: Theory and Practice of Computer Science*, Lecture Notes in Computer Science, 4910. Berlin: Springer
- 2006 D. de Falco and DT, Entropy generation in a model of reversible computation, *RAIRO: Inf. Theor. Appl.*, 40, 93
- 2006 D. de Falco and DT, Speed and entropy of an interacting continuous time quantum walk, *J. Phys. A: Math. Gen.*, 39, 5873
- 2004 D. de Falco and DT, Quantum timing and synchronization problems, *Int. J. Mod. Phys. B*, 18, 623
- 2004 D. de Falco and DT, Grover algorithm on a Feynman computer, *J. Phys. A: Math. Gen.*, 37, 909

Books

A.M. Zanaboni, A.M., D. de Falco and DT, *Problemi di Probabilità e Statistica per le Lauree Triennali*. - Napoli: Liguori, 2009.

Teaching Experience

2007-now	Programming (C/C++), Undergraduate Course, Physics
2012-2014	C Programming, Master Course, Chemistry
2015-16	Coherent phenomena, Ph.D. Course, Physics
2012-14	Computational Physics (Probabilistic and Advanced Statistical Methods), Ph.D. Course, Physics
2009-11	Probabilistic Methods, Master Course, Computer Science
2007	Mathematical Statistics, Undergraduate Course, System Engineering
2004-07	Problem-solving classes: Probability and Statistics, Geometry and Algebra, Analysis

Referee for Journal of Physics A, Quantum, Scientific Reports, Annals of Physics, Physica Status Solidi, MIUR, Neural Networks, Zeitschrift für Naturforschung, Physics Letters A, IEEE Transactions on Cybernetics, COST Action.

Dario Tamascelli

Dr.



4 December 1977



Dipartimento di Fisica
Università degli Studi di Milano
20133 Milano (MI)
Italy



+39 0250317454



[http://www2.fisica.unimi.it/
dario.tamascelli/Home.html](http://www2.fisica.unimi.it/dario.tamascelli/Home.html)



dario.tamascelli@unimi.it

Languages

German



English



Skills

Programming: C-C++



Programming: CUDA



Programming: Python



Programming: Julia



Wolfram Mathematica



Matlab



(*)[The skill scale is from 0 (Fundamental Awareness) to 6 (Expert).]

Conferences and Workshops

Sep. 2016	IQIS 2016, Rome, Italy	Poster
Jun. 2016	AQM Workshop, Venice, Italy	Invited Talk
Jul. 2015	AQM Workshop, Modena, Italy	Invited Talk
Jun. 2015	QUEBS 2015, Florence	Poster
Nov. 2013	Quantum Simulation and Quantum Walks, Pisa, Italy	Contributed Talk
Oct. 2013	Noise Information and Complexity at the Quantum Scale, Communication at the Quantum Scale, Erice, Italy	
Oct. 2011	Wave-Function Monte Carlo methods Politecnico di Milano, Milano, Italy	Invited Seminar
Jan. 2010	QIP'10, Zurich, Switzerland	Poster
Sep. 2009	QIPC'09, Rome, Italy	Poster
Sep. 2009	ICTCS'09, Cremona, Italy	Contributed Talk
Oct. 2008	Quantum Probability and White Noise Analysis, Hammamet, Tunisia	Contributed Talk
Oct. 2008	IQIS'08, Camerino, Italy	Contributed Talk
Jan. 2008	SOFSEM'08, Current Trends in Theory and Practice of Computer Science, Novy Smokovec, Slovakia	Contributed Talk
Nov. 2007	Noise, Information and Complexity at Quantum Scale, Erice, Italy	Poster
Oct. 2006	Interacting Quantum Walks, UCL London, UK	Invited Seminar
Oct. 2006	QIPC'06, London, UK	
Jun. 2006	Workshop on Theory and Technology in Quantum Information, Communication, Computation and Cryptography, Abdus Salam International Center for Theoretical Physics, Trieste, Italy	
Jan. 2006	QIP'06, Paris, France	
Feb. 2005	STACS'05, Symposium on Theoretical Aspects of Computer Science, Stuttgart, Germany	
Jan. 2005	QIP'05, Boston, U.S.	
Jun. 2004	Entropy and Relative Entropy in the Mathematical, Physical and Engineering Sciences Workshop, Padova, Italy	