1/ Personal data

Name: DI MOLFETTA Giuseppe
Birth date: 29/07/1985

Professional address (with telephone and e-mail):

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Current job title and size of the research group:

Associate Professor in the Informatics and Interactions department of Aix-Marseille University and researcher in the CaNa team of the LIS laboratory. The CaNa group has 7 permanent members, 2 post-docs, 3 PhD students, 5 interns. Also an associate member of the Department of Theoretical Physics of the University of Valencia (Spain).

2/ Highest obtained degree (with indication of place and date)

• Ph.D. - Université Pierre et Marie Curie (Sorbonne Université), July 2015

3/ Professional activity in the last 5 years

• 2016–2018. Maître de Conférences - Aix-Marseille University
• 2015–2016. Post-Doc, IFIC, Universidad de Valencia.

4/ Other duties/ positions

• Head of the First year Computer Science/Mechanics/Physics/Mathematics at Luminy (AMU, 2016-).

5/ Awards, fellowships and external recognition

JSPS Bridge Fellowship, Awarded by CNRS and Japan Society of Promotion of Science (2109) - Keio Univ.
Nominated for the 2017 New Journal of Physics Early Career Award;
Fellowship, Awarded by Ville de Marseille (MLR/IP N 2016/165)
JSPS Fellowship, Awarded by CNRS and Japan Society of Promotion of Science (2102)
Scholarship, Graduate School of Physics (ED Physique en Ile de France) (2012)
Scholarship, Spring School on Complex Systems , SISSA , Trieste (2012).

6/ Ongoing funded research projects with dates, titles, sources of funding

2019-2022 (36 months): The Quantum Information Structure of Spacetime project, supported by the John Templeton Foundation, at the initiative of the Centre for Space, Time and Quantum at Marseille (2M€)
2020-2023 (36 months): partner of ANR JCJC coordinated by Hachem Kadri on Quantum technique for machine learning, co-PI
2019-2021 (18 months): Pépinière d'excellence - Fondation AMIDEX, Discrete Time Quantum Simulation, 25k euro, PI
2018-2020 (36 months): PICS CNRS France-Espagne Quantum Walks and Geometry, 12K euro, PI

7/ Projects approved in the least 5 years

2018 (12 months): INFINITI 2018 Lattice Quantum Simulation Theory, 5K euro, PI
2017 (12 months): PEPS JCJC INS2I project Quantum Networks and Growing, 8k euro, PI

8/ The 5 most important publications related to the project theme

1. Arrighi, P., Di Molfetta, G., Márquez-Martín, I., & Perez, A. From curved spacetime to spacetime-dependent local unitaries over the honeycomb and triangular Quantum Walks. *Scientific reports*, *9*(1), 10904 (2019).
2. Márquez-Martín, I, Arnault, P., Di Molfetta, G., and Pérez, A. Electromagnetic lattice gauge invariance in two-dimensional discrete-time quantum walks, Physical Review A 98 (3), 032333, (2018)
3. Arrighi, P., Di Molfetta, G., & Facchini, S.. Quantum walking in curved spacetime: discrete metric. Quantum 2, 84 (2018)
4. Arrighi, P., Di Molfetta, G., Márquez-Martín, I., & Pérez, A.. *Dirac equation as a quantum walk over the honeycomb and triangular lattices.* Physical Review A, 97(6), 062111. (2018).

5. Hatifi, M., Di Molfetta, G., Debbasch, F., & Brachet, M. (2017). Quantum walk hydrodynamics. Scientific Reports (Nature) *volume 9 - 2989*
5. G. Di Molfetta, A. Perez, *Quantum Walks as simulators of neutrino oscillations in a vacuum*, New Journal of Physics 18, (10), 103038, (2017)

9/ Ongoing theses oriented and post-doctoral fellows supervised

PhD thesis: Ivan Marquez, co-supervised with Armando Perez (U. Valencia) 2016-2019 [Quantum Simulation]
PhD thesis: Kevissen Sellapillay, co-supervised with Alberto Verga (CPT, Aix-Marseille Univ) 2019-2022 [Topological codes]
PhD thesis: Nathanael Eon, co-supervised with Pablo Arrighi (LIS, Aix-Marseille Univ) 2019-2022 [Gauge invariance in discrete spacetime]
PhD thesis: Casale Balthazar, co-supervised with Kadri Hachem (LIS, Aix-Marseille Univ) 2019-2022 [Quantum Machine Learning]