CV Date	16/09/2024

Part A. PERSONAL INFORMATION

First Name	Angelo		
Family Name	Lucia		
Sex	Male	Date of Birth	21/12/1987
ID number Social Security, Passport	Y2323854V		
URL Web	https://angelolucia.xyz		
Email Address	anglucia@ucm.es		
Open Researcher and Contributor ID (ORCID)	0000-0003-1709-1220		

A.1. Current position

Job Title	Ramón y Cajal Researcher		
Starting date	2021		
Institution	Universidad Complutense de Madrid		
Department / Centre	Departamento de Análisis Matemático y Matemática Aplicada / Facultad de Ciencias Matemáticas		
Country	Spain	Phone Number	(+34) 913944476
Keywords	Rigurous results in statistical mechanics and many bodies; Quantum information and associated physical effects		

A.2. Previous positions (Research Career breaks included)

Period	Job Title / Name of Employer / Country
2018 - 2021	Sherman Fairchild Postdoctoral Fellow / California Institute of Technology / United States of America
2016 - 2018	Postdoc / University of Copenhagen / Denmark
2012 - 2016	PDI en formación (FPI) / Universidad Complutense de Madrid / Spain

A.3. Education

Degree/Master/PhD	University / Country	Year
Doctorado en Investigación Matemática	Universidad Complutense de Madrid / Spain	2016

Part C. RELEVANT ACCOMPLISHMENTS

C.1. Most important publications in national or international peer-reviewed journals, books and conferences

AC: corresponding author. (nº x / nº y): position / total authors. If applicable, indicate the number of citations

1 **Scientific paper**. Angelo Lucia; Alvin Moon; Amanda Young. 2023. Stability of the Spectral Gap and Ground State Indistinguishability for a Decorated AKLT Model. Annales Henri Poincaré. https://doi.org/10.1007/s00023-023-01398-8

2 **Scientific paper**. Angelo Lucia; David Pérez-García; Antonio Pérez-Hernández. 2023. Thermalization in Kitaev's quantum double models via tensor network techniques. Forum of Mathematics, Sigma. 11. https://doi.org/10.1017/fms.2023.98

3 **Scientific paper**. Ivan Bardet; Ángela Capel; Li Gao; Angelo Lucia; David Pérez García; Cambyse Rouzé. 2024. Entropy Decay for Davies Semigroups of a One Dimensional Quantum Lattice. Communications in Mathematical Physics. Springer Nature. 405. https://doi.org/10.1007/s00220-023-04869-5

4 **Scientific paper**. (1/2) Angelo Lucia (AC); Amanda Young. 2023. A nonvanishing spectral gap for AKLT models on generalized decorated graphs. Journal of Mathematical Physics. 64, pp.041902. https://doi.org/10.1063/5.0139706

5 **Scientific paper**. Ivan Bardet; Ángela Capel; Li Gao; Angelo Lucia; David Pérez García; Cambyse Rouzé. 2023. Rapid Thermalization of Spin Chain Commuting Hamiltonians. Physical Review Letters. American Physical Society. 130-6, pp.060401. https://doi.org/10.1103/PhysRevLett.130.060401

6 **Scientific paper**. Bardet, Ivan; Capel, Ángela; Lucia, Angelo; Pérez-García, David; Rouzé, Cambyse. 2021. On the modified logarithmic Sobolev inequality for the heat-bath dynamics for 1D systems. Journal of Mathematical Physics. 62-6, pp.061901. https://doi.org/10.1063/1.5142186

7 **Scientific paper**. Matthias Christandl; Angelo Lucia; Péter Vrana; Albert H. Werner. 2020. Tensor network representations from the geometry of entangled states. SciPost Phys.SciPost. 9, pp.42-42. https://doi.org/10.21468/SciPostPhys.9.3.042

8 **Scientific paper**. Johannes Bausch; Toby Cubitt; Angelo Lucia; David Perez-Garcia. 2020. Undecidability of the Spectral Gap in One Dimension. Physical Review X. American Physical Society. 10, pp.031038-031038. https://doi.org/10.1103/PHYSREVX.10.031038

9 **Scientific paper**. John Martyn; Kohtaro Kato; Angelo Lucia. 2020. Deformations of the boundary theory of the square-lattice AKLT model. Physical Review B. American Physical Society. 102-3, pp.035121. https://doi.org/10.1103/PHYSREVB.102.035121

10 **Scientific paper**. Houssam Abdul-Rahman; Marius Lemm; Angelo Lucia; Bruno Nachtergaele; Amanda Young. 2020. A class of two-dimensional AKLT models with a gap. Contemporary Mathematics. AMS. 741, pp.1-21. https://doi.org/10.1090/conm/741/14917

11 **Scientific paper**. Bergfinnur Durhuus; Angelo Lucia. 2019. Recursion relations for chromatic coefficients for graphs and hypergraphs. Discussiones Mathematicae Graph Theory. https://doi.org/10.7151/dmgt.2248

12 **Scientific paper**. Michael Kastoryano; Angelo Lucia; David Pérez García. 2019. Locality at the Boundary Implies Gap in the Bulk for 2D PEPS. Communications in Mathematical Physics. Springer Berlin Heidelberg. 366-3, pp.895-926. https://doi.org/10.1007/s00220-019-03404-9

13 **Scientific paper**. Ángela Capel; Angelo Lucia; David Pérez-García. 2018. Quantum conditional relative entropy and quasi-factorization of the relative entropy. Journal of Physics A: Mathematical and Theoretical. 51-48. https://doi.org/10.1088/1751-8121/aae4cf

14 **Scientific paper**. Michael J Kastoryano; Angelo Lucia. 2018. Divide and conquer method for proving gaps of frustration free Hamiltonians. Journal of Statistical Mechanics: Theory and Experiment. 2018-March. https://doi.org/10.1088/1742-5468/aaa793

15 **Scientific paper**. Johannes Bausch; Toby S. Cubitt; Angelo Lucia; David Perez-Garcia; Michael M Wolf. 2018. Size-driven quantum phase transitions. Proceedings of the National Academy of Sciences of the United States of America. 115-1, pp.19-23. https://doi.org/10.1073/pnas.1705042114

16 **Scientific paper**. Ángela Capel; Angelo Lucia; David Pérez García. 2017. Superadditivity of Quantum Relative Entropy for General States. IEEE Transactions on Information Theory. IEEE. 64-7, pp.4758-4765. https://doi.org/10.1109/tit.2017.2772800

17 **Scientific paper**. Fernando G.S.L. Brandao; Toby S. Cubitt; Angelo Lucia; Spyridon Michalakis; David Perez-Garcia. 2015. Area law for fixed points of rapidly mixing dissipative quantum systems. Journal of Mathematical Physics. 56, pp.102202. https://doi.org/10.1063/1.4932612

18 **Scientific paper**. Angelo Lucia; Toby S. Cubitt; Spyridon Michalakis; David Pérez-García. 2015. Rapid mixing and stability of quantum dissipative systems. Physical Review A (Rapid Communications). 91, pp.040302(R). https://doi.org/10.1103/PhysRevA.91.040302

19 **Scientific paper**. Toby S. Cubitt; Angelo Lucia; Spyridon Michalakis; David Perez-Garcia. 2015. Stability of Local Quantum Dissipative Systems. Communications in Mathematical Physics. 337-3, pp.1275-1315. https://doi.org/10.1007/s00220-015-2355-3

C.3. Research projects and contracts

1 **Project**. RYC2019-026475-I, Quantum information and quantum statistical mechanics. Agencia Estatal de Investigación. Angelo Lucia. (Universidad Complutense de Madrid). 05/2021-04/2026. 308.600 €. Principal investigator.

2 **Project**. PID2020-113523GB-I00, Analisis Matematico y Teoria de Informacion Cuantica. Ministerio de Ciencia e Innovación. Carlos Palazuelos Cabezón. (Universidad Complutense de Madrid). 01/09/2021-31/08/2024. 103.697 €. Team member.

3 **Project**. NSF Grant PHY-1733907, Institute for Quantum Information and Matter. National Science Fundation (USA). John Preskill. (California Institute of Technology). 03/2018-02/2024. Team member.

4 **Project**. P2018/TCS-4342, QUITEMAD-CM: Quantum Information Technologies Madrid. Comunidad de Madrid. Miguel Ángel Martín Delgado. 01/2019-12/2022. Team member.

5 **Project**. Start-up grant "Rubio de Francia". Fundación BBVA. Angelo Lucia. 07/2018-07/2021. 35.000 €. Principal investigator.

6 **Project**. ERC grant agreement No 648913, Spectral gaps in interacting quantum systems (GAPS). European Research Council. David Pérez García. 2015-2021. 1.462.750 €. Team member.

7 **Project**. Centre of Excellence Grant No. 10059, QMATH. VILLUM FONDEN. Matthias Christandl. (University of Copenhagen). 2015-2019. Team member.

8 **Project**. ERC grant agreement No 337603, Multipartite Quantum Information Theory. European Research Council. Matthias Christandl. (University of Copenhagen). 2013-2019. 1.389.581 €. Team member.

9 **Project**. QUITEMAD+-CM: QUantum Information TEchnologies MADrid+ S2013/ICE-2801. Comunidad Autónoma de Madrid. Alberto Ibort. 11/2014-09/2018.

10 **Project**. MTM2014-54240-P, Mathematics of Quantum Entanglement. Ministerio de Economía y Competividad. David Pérez García. (Universidad Complutense de Madrid). 2015-2018. 35.453 €. Team member.

11 **Project**. Do unprovable truths emerge from physics? John Templeton Foundation ID#48322. John Templeton Foundation. David Pérez-García. 2014-2017.

12 **Project**. Multiparty Quantum Information Theory (Sapere Aude Starting Grant). Danish Council for Independent Research. Matthias Christandl. (University of Copenhagen). 2013-2017.

13 **Project**. Composing Quantum Channels PRI-PIMCHI-2011-1071. CHIST-ERA. M. M. Wolf. 2012-2015.

14 **Project**. MTM-2011-26912, Entanglement in Quantum Systems. Ministerio de Economia y Competividad. David Pérez García. (Universidad Complutense de Madrid). 2012-2014. 100.000 €. Team member.

15 **Project**. QUITEMAD: QUantum Information TEchnologies MADrid S2009/ESP-1594. Comunidad Autónoma de Madrid. 01/2010-12/2013.