

List of Publications

Additional information can be found on my Google Scholar's profile page:

<https://scholar.google.it/citations?user=k1ionlkAAAAJ>

Preprints

- 1) *Universal purification dynamics of monitored Clifford circuits*, B. Magni, F. Gerbino, X. Turkeshi, A. De Luca, [arXiv:2607.06683](#)
- 2) *Error-Correction Transitions in Finite-Depth Quantum Channels*, A. Sauliere, G. Lami, P. Ribeiro, A. De Luca, J. De Nardis, [arXiv:2603.20369](#)
- 3) *Universal purification dynamics in real non-unitary quantum processes*, F. Gerbino, D. Kim, G. Giachetti, A. De Luca, X. Turkeshi, [arXiv:2603.10751](#)
- 4) *Elusive phase transition in the replica limit of monitored systems*, G. Giachetti, A. De Luca, [arXiv:2306.12166](#)

Journal Papers: Refereed

- 5) A. Sauliere, G. Lami, C. Boyer, J. De Nardis, A. De Luca, *Universality in the anticoncentration of noisy quantum circuits at finite depths*, *PRX Quantum* 7, 020365 (2026), [arXiv:2508.14975](#)
- 6) J. Costa, P. Ribeiro, A. De Luca, *Emergence of universality in transport of noisy free fermions*, *Phys. Rev. Lett.* 137, 020403 (2026), [arXiv:2504.00188](#)
- 7) G. Lami, A. De Luca, X. Turkeshi, J. De Nardis, *Quantum state design and emergent confinement mechanism in measured tensor network states*, *npj Quantum Information* (2026), [arXiv:2504.16995](#)
- 8) A. Tiutiakina, H. Lóio, G. Giachetti, J. De Nardis, A. De Luca, *Field theory for monitored Brownian SYK clusters*, *Quantum* 9, 1794
- 9) Beatrice Magni, Alexios Christopoulos, Andrea De Luca, Xhek Turkeshi, *Anticoncentration in Clifford Circuits and Beyond: From Random Tensor Networks to Pseudo-Magic States*, *Phys. Rev. X* 15 (3), 031071, [arXiv:2502.20455](#)
- 10) F. Gerbino, G. Giachetti, P. Le Doussal, A. De Luca, *Measurement-Induced Phase Transition in State Estimation of Chaotic Systems and the Directed Polymer*, *Phys. Rev. Research* 7 (3), 033105, [arXiv: 2501.00547](#)
- 11) A. Christopoulos, A. Chan, A. De Luca, *Universal distributions of overlaps from generic dynamics in quantum many-body systems*, *Phys. Rev. Research* 7, 043035 (2025), [arXiv:2404.10057](#)
- 12) X. Turkeshi, P. Calabrese, A. De Luca, *Quantum Mpemba Effect in Random Circuits*, *Phys. Rev. Letters* 135 (4), 040403, [arXiv:2405.14514](#)
- 13) A. De Luca, C. Liu, A. Nahum, T. Zhou, *Universality classes for purification in nonunitary quantum processes*, *Phys. Rev. X* 15 (4), 041024, [arXiv:2312.17744](#)
- 14) A. Chan, A. De Luca, *Projected state ensemble of a generic model of many-body quantum chaos*, *Journal of Physics A: Mathematical and Theoretical* 57, 405001 (2024), [arXiv:2402.16939](#)
- 15) F. Gerbino, P.L. Doussal, G. Giachetti, A. De Luca, *A Dyson Brownian motion model for weak measurements in chaotic quantum systems*, *Quantum Reports* 6 (2), 200-230, [arXiv:2401.00822](#)
- 16) A. Tiutiakina, A. De Luca, J. De Nardis, *Frame potential of Brownian SYK model of Majorana and Dirac fermions*, *Journal of High Energy Physics* 2024 (1), 1-31
- 17) A. Christopoulos, A. De Luca, D.L. Kovrizhin, T. Prosen, *Dual symplectic classical circuits: An exactly solvable model of many-body chaos*, *SciPost Phys.* 16, 049 (2024), [arXiv:2307.01786](#)
- 18) H. Lóio, A. De Luca, J. De Nardis, X. Turkeshi, *Purification Timescales in Monitored Fermions*, *Phys. Rev. B* 108, L020306, [arXiv:2303.12216](#)

- 19) Spectral and steady-state properties of fermionic random quadratic Liouvillians, J Costa, P Ribeiro, A de Luca, T Prosen, L Sá, *SciPost Phys.* 15, 145 (2023), arXiv:2210.07959
- 20) V.M. Schimmenti, F. Lanza, A. Hansen, S. Franz, A. Rosso, L. Talon, A. De Luca, Exact solution for the Darcy law of yield stress fluids on the Bethe lattice, *Phys. Rev. E* 108, L023102, arXiv:2208.06048
- 21) M. Lucas, L. Piroli, J. De Nardis, A. De Luca, Generalized deep thermalization for free fermions, *Physical Review A* 107 (3), 032215
- 22) S. Shivam, A. De Luca, D.A. Huse, A. Chan, Many-body quantum chaos and emergence of Ginibre ensemble, *Physical Review Letters* 130 (14), 140403
- 23) P. Le Doussal, D. Bernard, A. Christopoulos, A. De Luca, Universal out-of-equilibrium dynamics of 1D critical quantum systems perturbed by noise coupled to energy, *Physical Review X* 13 (1), 011043 (2023), arXiv:2110.15303
- 24) A. Chan, S. Shivam, D. A. Huse, A. De Luca, Many-Body Quantum Chaos and Space-time Translational Invariance, *Nature communications* 13 (1), 7484, arXiv:2109.04475
- 25) M. Collura, A. De Luca, D. Rossini, A. Lerose, Discrete time-crystalline response stabilized by domain-wall confinement, *Physical Review X* 12 (3), 031037, arXiv:2110.14705
- 26) G. Del Vecchio Del Vecchio, A. De Luca, A. Bastianello, Transport through interacting defects and lack of thermalisation, *SciPost Phys.* 12, 060 (2022), arXiv:2104.13887
- 27) A. Bastianello, A. De Luca, R. Vasseur, Hydrodynamics of weak integrability breaking, *J. Stat. Mech.: Theory and Experiment* 2021 (11), 114003
- 28) A. Chan, A. De Luca, J.T. Chalker, Spectral Lyapunov exponents in chaotic and localized many-body quantum systems, *Physical Review Research* 3 (2), 023118 (2021).
- 29) A. Bastianello, A. De Luca, B. Doyon, J. De Nardis, Thermalisation of a trapped one-dimensional Bose gas via diffusion, *Phys. Rev. Lett.* 125, 240604 (2020) arXiv:2007.04861 (2020).
- 30) A. Bastianello, J. De Nardis, A. De Luca, Generalised hydrodynamics with dephasing noise, *Phys. Rev. B* 102, 161110 (2020) **Editor's Suggestion, Rapid Communication**, arXiv:2003.01702 (2020).
- 31) M. Collura, A. De Luca, P. Calabrese, J. Dubail, Domain-wall melting in the spin-XXZ spin chain: emergent Luttinger liquid with fractal quasi-particle charge, *Phys. Rev. B* 102, 180409 (2020), arXiv:2001.04948
- 32) G. Del Vecchio Del Vecchio, A Bastianello, A De Luca, G Mussardo, Exact out-of-equilibrium steady states in the semiclassical limit of the interacting Bose gas, *SciPost Phys.* 9, 002 (2020), arXiv:2002.01423.
- 33) A. De Luca, A. Bastianello, Entanglement front generated by an impurity travelling in an isolated many-body quantum system, *Phys. Rev. B* 101, 085139 (2020) arXiv:1909.07341.
- 34) A. J. Friedman, A. Chan, A. De Luca, J. T. Chalker, Spectral statistics and many-body quantum chaos with conserved charge, *Phys. Rev. Lett.* 123 (21), 210603 (2019).
- 35) A Biella, M Collura, D Rossini, A De Luca, L Mazza, Ballistic transport and boundary resistances in inhomogeneous quantum spin chains, *Nature Communications* 10 (4820)
- 36) C. Liu, A. De Luca, A. Rosso, L. Talon, Darcy law for yield stress fluid, *Physical Review Letters* 122 (24), 245502, arXiv:1811.09494.
- 37) A. Bastianello, A. De Luca, Integrability-protected adiabatic reversibility in quantum spin chains, *Physical Review Letters* 122 (24), 240606, arXiv:1811.07922.
- 38) A. Chan, A. De Luca, J.T. Chalker, Eigenstate Correlations, Thermalization and the Butterfly Effect, *Physical Review Letters* 122 (22), 220601, arXiv:1810.11014.
- 39) X. Cao, A. Tilloy, A. De Luca, Entanglement and transport of a fermion chain under continuous monitoring, *SciPost Phys.* 7 (2), 24, arXiv:1804.04638.
- 40) A. Bastianello, A. De Luca, Superluminal moving defects in the Ising spin chain, *Physical Review B* **98**, 064304 (2018), arXiv: 1805.00405.
- 41) A. Chan, A. De Luca, J.T. Chalker, Spectral statistics in spatially extended chaotic quantum many-body systems, *Phys. Rev. Lett.* **121**, 060601 (2018), arXiv:1803.03841.

- 42) L. Mazza, J. Viti, M. Carrega, D. Rossini, A. De Luca, Energy transport in an integrable parafermionic chain via generalized hydrodynamics, *Phys. Rev. B* **98**, 075421 (2018), arXiv:1804.04476.
- 43) A. Chan, A. De Luca, J. T. Chalker, Solution of a minimal model for many-body quantum chaos, *Phys. Rev. X* **8**, 041019, arXiv: 1712.06836.
- 44) I. Rodríguez-Arias, M. Müller, A. Rosso, and A. De Luca. An exactly solvable model for Dynamic Nuclear polarization. *Phys. Rev. B* **98**, 224202, arXiv: 1703.05416.
- 45) I. Rodríguez-Arias, A. Rosso, A. De Luca, Eigenstate versus Zeeman-based approaches to the solid-effect, *Magnetic Resonance in Chemistry* **56**, 689, arXiv: 1712.07895.
- 46) M. Collura, A. De Luca, J. Viti, Analytic solution of the Domain Wall non-equilibrium stationary state, *Phys. Rev. B* **97** (Rap. Comm.), 081111, arXiv:1707.06218.
- 47) A. Bastianello, A De Luca, Non-Equilibrium Steady State generated by a moving defect: the supersonic threshold, *Phys. Rev. Lett.* **120**, 060602 (2018), arXiv:1705.09270.
- 48) A. De Luca, M. Collura, and J. De Nardis. Nonequilibrium spin transport in integrable spin chains: Persistent currents and emergence of magnetic domains. *Phys. Rev. B* (Rap. Comm.) **96**, 020403 (2017) **Editor's Suggestion**.
- 49) Bastianello, A. De Luca, and G. Mussardo. Non Relativistic Limit of Integrable QFT with fermionic excitations. *J. Phys. A*, arXiv:1701.06542, (2017).
- 50) A. De Luca and P. Le Doussal. Mutually avoiding paths in random media and largests eigenvalues of random matrices. *Phys. Rev. E* **95** (Rap. comm.), 030103 (2017).
- 51) A. Bastianello, A. De Luca, and G. Mussardo. Non Relativistic Limit of Integrable QFT and Lieb-Liniger Models. *J. Stat. Mech.*, 123104 (2016).
- 52) F. Caracciolo, M. Filibian, P. Carretta, A. Rosso, and A. De Luca. Evidence of spin-temperature in dynamic nuclear polarization: an exact computation of the EPR spectrum. *Phys. Chem. Chem. Phys.* **18**, 25655 (2016).
- 53) A. De Luca and G. Mussardo. Equilibration Properties of Classical Integrable Field Theories. *J. Stat. Mech.*, Special Issue on Quantum Integrability in Out of Equilibrium Systems (2016).
- 54) A. De Luca, I. Rodríguez Arias, M. Müller, and A. Rosso. Thermalization and many-body local- ization in systems under dynamic nuclear polarization. *Phys. Rev. B* **94**, 014203 (2016).
- 55) A. Biella, A. De Luca, J. Viti, D. Rossini, L. Mazza, and R. Fazio. Energy transport between two integrable spin chains. *Phys. Rev. B* **93**, 205121 (2016).
- 56) A. De Luca and P. Le Doussal. Crossing probability for directed polymers in random media. ii. exact tail of the distribution. *Phys. Rev. E* **93**, 032118 (2016).
- 57) A. De Luca and P. Le Doussal. The crossing probability for directed polymers in random media. *Phys. Rev. E* **92** (Rap. comm.), 040102 (2015).
- 58) A. De Luca and A. Rosso. Dynamic nuclear polarization and the paradox of quantum thermalization. *Phys. Rev. Lett.* **115**, 080401 (2015).
- 59) A. De Luca, G. Martelloni, and J. Viti. Stationary states in a free fermionic chain from the quench action method. *Phys. Rev. A* **91** (Rap. comm.), 021603 (2015).
- 60) A. De Luca, J. Viti, L. Mazza, and D. Rossini. Energy transport in Heisenberg chains beyond the Luttinger liquid paradigm. *Phys. Rev. B* **90** (Rap. comm.), 161101 (2014).
- 61) A. De Luca, B.L. Altshuler, V.E. Kravtsov, and A. Scardicchio. Anderson localization on the bethe lattice: nonergodicity of extended states. *Phys. Rev. Lett.* **113**, 046806 (2014).
[TOP 100 citations]
- 62) A. De Luca. Quenching the magnetic flux in a one-dimensional fermionic ring: Loschmidt echo and edge singularity. *Phys. Rev. B*, **90** (Rap. Comm.), 081403 (2014).
- 63) M. Pasquato, A. de Luca, G. Raimondo, R. Carini, A. Moraghan, C. Chung, E. Brocato, and Y.-W. Lee. Stellar encounter driven red-giant star mass loss in globular clusters. *Astrophys. J.* **789**, 28 (2014).

- 64) A. De Luca, J. Viti, D. Bernard, and B. Doyon. Nonequilibrium thermal transport in the quantum ising chain. *Phys. Rev. B* **88**, 134301 (2013).
- 65) A. De Luca and F. Franchini. Approaching the restricted solid-on-solid critical points through entanglement: One model for many universalities. *Phys. Rev. B* **87**, 045118 (2013).
- 66) A. De Luca and A. Scardicchio. Ergodicity breaking in a model showing many-body localization. *EPL* **101**, 37003 (2012). **[TOP 100 citations]**
- 67) G. P. Brandino, A. De Luca, R.M. Konik, and G. Mussardo. Quench dynamics in randomly generated extended quantum models. *Phys. Rev. B* **85**, 214435 (2011). **[TOP 50 citations]**
- 68) F. Buccheri, A. De Luca, and A. Scardicchio. Structure of typical states of a disordered Richardson model and many-body localization. *Phys. Rev. B* **84**, 094203 (2011).
- 69) A. De Luca and P. Rossi. Renormalization group evaluation of exponents in family name distributions. *Physica A* **388**, 3609 (2009).

Proceedings

- 70) A. De Luca. Ergodicity breaking and wave-function statistics in disordered interacting systems. In *15TH International Conference On Transport In Interacting Disordered Systems (TIDS15)*, volume 1610, pages 89–96. AIP Publishing, 2014.

Others

- 71) A. De Luca, A. Scardicchio, V.E. Kravtsov, and B.L. Altshuler. Support set of random wavefunctions on the Bethe lattice. *arXiv:1401.0019*, 2013 (unpublished).