CV

Name:	**Katja**
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Date of Birth:	18/8/1991
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1 Employment History

☐ **Proleptic Assistant Professor** **2024 – present**
School of Physics and Astronomy
University of Birmingham

☐ **Leverhulme Trust Early Career Fellow** **2022 – 2024**
School of Physics and Astronomy
University of Nottingham

☐ **Postdoctoral research assistant** **2020 – 2022**
Rudolf Peierls Centre for Theoretical Physics
University of Oxford

2 Academic History

☐ **PhD** **2016 – 2020**
Department of Physics
Faculty of Mathematics and Physics
University of Ljubljana
Supervisor: Tomaž Prosen
Thesis: *Exact time-dependent solutions of interacting systems*

☐ **MSc Phys** **2013 – 2016**
Department of Physics
Faculty of Mathematics and Physics
University of Ljubljana
Thesis supervisor: Tomaž Prosen
Thesis: *Ergodic properties of translationally invariant Majorana chains* (in Slovenian)

☐ **BSc Phys** **2010 – 2013**
Department of Physics
Faculty of Mathematics and Physics
University of Ljubljana

3 Grants and Awards

- ☐ **Leverhulme Trust Early Career Fellowship**
  Project: *Understanding thermalization through exact dynamics of quantum circuits* (ECF-2022-324)
  Funding Organization: Leverhulme Trust
  Duration: 36-months
  Starting date: 1/10/2022

- ☐ **Marie Skłodowska-Curie postdoctoral fellowship**
  Project: *Exact non-equilibrium dynamics in quantum circuits* (EDQC)
  Funding Organization: European Commission
  Amount awarded: €220908.48
  Duration: 24-months
  Declined in favour of ECF (see above)

4 Teaching

- ☐ **Teaching assistant at University of Ljubljana** **2017 – 2020**
  Physics exercises for students of Chemical Technology
- ☐ **Project assessor at University of Oxford** **2022**
  Marking final MPhys projects

5 Recent Professional Activities

- ☐ **Referee**
  IOP journals: *J. Stat. Mech.*, *J. Phys. A*
  Springer journals: *J. Stat. Phys.*
  SciPost journals: *SciPost Phys.*
  APS journals: *Phys. Rev. B, Phys. Rev. Lett., Phys. Rev. X*

6 Talks

Invited conference and departmental talks

- ☐ **Exactly Solved Models and Quantum Computing** **22/3/2024**
  Lorentz Center, Leiden
  Solvable dynamics in the deterministic east model

- ☐ **Quantum Interactive Dynamics 24** **15/3/2024**
  MPIPKS Dresden
  Solvable dynamics in the deterministic east model

- ☐ **Fluctuations, Entanglement, and Chaos: Exact Results** **28/8/2023**
  SCGP, Stony Brook
  Solvable quantum circuits: Insights into interacting integrable dynamics

- ☐ **Open QMBP** **27/6/2023**
  Institut Pascal, Paris Saclay
  Dynamics of charge fluctuations and symmetry-resolved entanglement

- ☐ **University of Birmingham Theory Group Seminar** **18/5/2023**
  Birmingham
  Dynamics of thermalization in isolated quantum many-body systems: A solvable example

- ☐ **Symposium in memory of Marko Medenjak** **12/5/2023**
  Ljubljana
  Dynamics of entanglement from space-time duality

☐ **13th Nottingham symposium on quantum systems** **26/4/2023**
Nottingham
Exact asymptotics of entanglement and full counting statistics in an interacting integrable model

☐ **Quantum circuits and non-equilibrium dynamics** **17/4/2023**
Cambridge

Solvable quantum circuits: Insights into interacting integrable dynamics

☐ **JSPS Symposium** **12/12/2022**
Nottingham
Entanglement negativity and mutual information after a quantum quench: Exact link from space-time duality

☐ **SEMPS 18 workshop** **16/11/2022**
City, University of London
Growth of Rényi entropies in interacting integrable models

☐ **Random matrix theory seminar** **1/11/2022**
Mathematical Institute, Oxford
Entanglement negativity and mutual information after a quantum quench: Exact link from space-time duality

☐ **Integrable and Chaotic Dynamics** **8/7/2022**
Pokljuka
Entanglement negativity and mutual information after a quantum quench: Exact link from space-time duality

☐ **Statistical physics and complexity webinar series** **14/6/2022**
Edinburgh (online)
Time-dependent matrix product ansatz for interacting reversible dynamics

☐ **Budapest integrability events** **19/5/2022**
Budapest (online)
Entanglement negativity and mutual information after a quantum quench: Exact link from space-time duality

☐ **Joint ICTP/SISSA statistical physics seminar** **21/12/2021**
SISSA Trieste
Exact description of quench dynamics and entanglement spreading in Rule 54

☐ **Colloquium** **10/11/2021**
Perimeter Institute (online)
Dynamics of thermalization in isolated quantum many-body systems: A simple solvable example

☐ **Quantum fields and strings group seminar** **26/10/2021**
Perimeter Institute (online)
Exact relaxation dynamics in Rule 54 cellular automaton

☐ **Leeds-Loughborough-Nottingham non-equilibrium seminar** **20/10/2021**
Leeds/Loughborough/Nottingham (online)
Exact relaxation dynamics in Rule 54 cellular automaton

☐ **Quantum dynamics e-seminar** **9/4/2021**
Oxford (online)

☐ **17th Christmas symposium of physicists** **14/12/2018**
Maribor
Time-dependent matrix product ansatz for interacting reversible dynamics

☐ **16th Christmas symposium of physicists** **16/12/2017**
Maribor
Diffusion in deterministic lattice systems

☐ **15th Christmas symposium of physicists** **16/12/2016**
Maribor
Heisenberg picture time-evolution of periodically kicked quantum systems

Contributed talks and posters

☐ **IOP Theory of Condensed Matter** **10/6/2021**
Warwick(online)
Poster: *Exact Thermalization Dynamics in the "Rule 54" Quantum Cellular Automaton*
Poster Prize Runner-up

☐ **Student workshop on integrability** **9/4/2019**
Louvain-la-Neuve
Time-dependent matrix product ansatz for interacting reversible dynamics

☐ **4th Trieste-Ljubljana meeting** **13/11/2018**
Ljubljana
Time-dependent matrix product ansatz for interacting reversible dynamics

7 Outreach activities

☐ **Speed-meeting a scientist** **31/3/2022**
Informal chats with groups of school-age girls that participated in the *Marie Curious* event organized by the Oxford Department of Physics.

☐ **Meta PHoDcast** **18/4/2019**
A podcast interview about my PhD work

☐ **PhD cake talk** **28/2/2018**
Ljubljana
Statistical physics of cellular automata
A short introductory talk about my research aimed at mathematics and physics PhD students.

8 List of Publications

Preprints

[2] C. De Fazio, J. P. Garrahan, **K. Klobas**, *Exact results on the dynamics of the stochastic Floquet-East model*, arXiv:2406.17464.

[1] **K. Klobas**, C. Rylands, B. Bertini, *Translation symmetry restoration under random unitary dynamics*, arXiv:2406.04296.

Journal Papers: Refereed

[20] **K. Klobas**, C. De Fazio, J. P. Garrahan, *Exact pretransition effects in kinetically constrained circuits: Dynamical fluctuations in the Floquet-East model*, Phys. Rev. E in press, arXiv:2305.07423.

[19] C. Rylands, **K. Klobas**, F. Ares, P. Calabrese, S. Murciano, B. Bertini, *Microscopic origin of the quantum Mpemba effect in integrable systems*, Phys. Rev. Lett. **133**, 010401 (2024), arXiv:2310.04419.
Selected for an *Editor's Suggestion* and featured in a *Viewpoint in Physics*.

[18] B. Bertini, **K. Klobas**, M. Collura, P. Calabrese, C. Rylands, *Dynamics of charge fluctuations from asymmetric initial states*, Phys. Rev. B **109**, 184312 (2024), arXiv:2306.12404.

[17] B. Bertini, C. De Fazio, J. P. Garrahan, **K. Klobas**, *Exact quench dynamics of the Floquet quantum East model at the deterministic point*, Phys. Rev. Lett. **132**, 120402 (2024), arXiv:2310.06128.

[16] B. Bertini, P. Calabrese, M. Collura, **K. Klobas**, C. Rylands, *Nonequilibrium full counting statistics and symmetry-resolved entanglement from space-time duality*, Phys. Rev. Lett. **131**, 140401 (2023), arXiv:2212.06188.

[15] **K. Klobas**, P. Fendley, J. P. Garrahan, *Stochastic strong zero modes and their dynamical manifestations*, Phys. Rev. E **107**, L042104 (2023), arXiv:2205.09110.

[14] B. Bertini, **K. Klobas**, T.-C. Lu, *Entanglement negativity and mutual information after a quantum quench: Exact link from space-time duality*, Phys. Rev. Lett. **129**, 140503 (2022), arXiv:2203.17254.

[13] B. Bertini, **K. Klobas**, V. Alba, G. Lagnese, P. Calabrese, *Growth of Rényi entropies in interacting integrable models and the breakdown of the quasiparticle picture*, Phys. Rev. X **12**, 031016 (2022), arXiv:2203.17264.

[12] **K. Klobas**, T. Prosen, *On two reversible cellular automata with two particle species*, J. Phys. A **55**, 094003 (2022), arXiv:2109.01644.
Invited contribution to the Special Issue *Hydrodynamics in Low-Dimensional Quantum Systems.*

[11] **K. Klobas**, B. Bertini, *Entanglement dynamics in Rule 54: exact results and quasiparticle picture*, SciPost Phys. **11**, 107 (2021), arXiv:2104.04513.

[10] **K. Klobas**, B. Bertini, *Exact relaxation to Gibbs and non-equilibrium steady states in the quantum cellular automaton Rule 54*, SciPost Phys. **11**, 106 (2021), arXiv:2104.04511.

[9] B. Buča, **K. Klobas**, T. Prosen, *Rule 54: Exactly solvable model of nonequilibrium statistical mechanics*, J. Stat. Mech. **2021**, 074001 (2021), arXiv:2103.16543.
Invited review article for the Special Issue *Emergent Hydrodynamics in Integrable Many-Body Systems.*

[8] **K. Klobas**, B. Bertini, L. Piroli, *Exact thermalization dynamics in the "Rule 54" Quantum Cellular Automaton*, Phys. Rev. Lett. **126**, 160602 (2021), arXiv:2012.12256.
Selected for an *Editor's Suggestion* and featured in a *Viewpoint in Physics*.

[7] J. W. P. Wilkinson, **K. Klobas**, T. Prosen, J. P. Garrahan, *Exact solution of the Floquet-PXP cellular automaton*, Phys. Rev. E **102**, 062107 (2020), arXiv:2006.06556.

[6] **K. Klobas**, T. Prosen, *Space-like dynamics in a reversible cellular automaton*, SciPost Phys. Core **2**, 10 (2020), arXiv:2004.01671.

[5] **K. Klobas**, M. Vanicat, J. P. Garrahan, T. Prosen, *Matrix product state of multi-time correlations*, J. Phys. A **53**, 335001 (2020), arXiv:1912.09742.

[4] **K. Klobas**, M. Medenjak, T. Prosen, M. Vanicat, *Time-dependent matrix product-ansatz for interacting reversible dynamics*, Commun. Math. Phys. **371**(2), 651 (2019), arXiv:1807.05000.

[3] **K. Klobas**, M. Medenjak, T. Prosen, *Exactly solvable deterministic lattice model of crossover between ballistic and diffusive transport*, J. Stat. Mech. **2018**, 123202 (2018), arXiv:1808.07385.

[2] S. Vajna, **K. Klobas**, T. Prosen, A. Polkovnikov, *Replica resummation of the Baker-Campbell-Hausdorff series*, Phys. Rev. Lett. **120**, 200607 (2018), arXiv:1707.08987.

[1] M. Medenjak, **K. Klobas**, T. Prosen, *Diffusion in deterministic interacting lattice systems*, Phys. Rev. Lett. **119**, 110603 (2017), arXiv:1705.04636.