



Nima Lashkari

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US Green Card holder

Appointments

Sep 2018- Aug 2019	Assistant Professor of Theoretical Physics at Purdue University
Jul 2018- Aug 2019	Member of the Institute for Advanced Study
Jan 2015- Jun 2018	Postdoctoral Associate at the Massachusetts Institute of Technology
Sep 2013- Aug 2014	Visiting Scholar at Stanford Institute for Theoretical Physics
Jul 2012- Aug 2013 Sep 2014- Dec 2014	Postdoctoral Fellow at the University of British Columbia

Education

2006-2012	Ph.D. and M.Sc. in Physics at McGill University
2003-2006	B.Sc. in Physics in Sharif University of Technology

Honors and Awards

2017 & 2018	Simons Foundation Fellowship "It from Qubit" collaboration Delta Institute for Theoretical Physics Fellowship (Declined) The Institute for Theoretical Physics at the University of Amsterdam
2015	Marie Skłodowska-Curie Fellowship (Declined) European Commission
2012	NSERC Postdoctoral Fellowship Natural Sciences and Engineering Research Council of Canada (NSERC)
2011 2008 & 2010 2009	Schulich Graduate Fellowship Dow-Hickson Fellowship Principal's Graduate Fellowship McGill University
2002	Honourable Mentioned in "The First Step to the Nobel Prize" International Highschool Physics Competition

Publications

1. N. Lashkari, H. Liu, and S. Rajagopal, "Perturbation Theory for the Logarithm of a Positive Operator," [arXiv:1811.05619](#) [hep-th]
2. N. Lashkari, H. Liu, and S. Rajagopal, "Modular Flow of Excited States," [arXiv:1811.05052](#) [hep-th]
3. N. Lashkari, "Constraining Quantum Fields using Modular Theory," [arXiv:1810.09306](#) [hep-th]
4. N. Lashkari, A. Dymarsky, and H. Liu, "Universality of Quantum Information in Chaotic CFTs," *JHEP* **03** (2018) 070, [arXiv:1710.10458](#) [hep-th]
5. N. Lashkari, "Entanglement at a Scale and Renormalization Monotonones," [arXiv:1704.05077](#) [hep-th]
6. A. Dymarsky, N. Lashkari, and H. Liu, "Subsystem ETH," *Phys. Rev.* **E97** (2018) 012140, [arXiv:1611.08764](#) [cond-mat.stat-mech]
7. N. Lashkari, A. Dymarsky, and H. Liu, "Eigenstate Thermalization Hypothesis in Conformal Field Theory," *J. Stat. Mech.* **1803** no. 3, (2018) 033101, [arXiv:1610.00302](#) [hep-th]
8. N. Lashkari, J. Lin, H. Ooguri, B. Stoica, and M. Van Raamsdonk, "Gravitational Positive Energy Theorems from Information Inequalities," *PTEP* **2016** no. 12, (2016) 12C109, [arXiv:1605.01075](#) [hep-th]
9. N. Lashkari, "Modular Hamiltonian of Excited States in Conformal Field Theory," *Phys. Rev. Lett.* **117** no. 4, (2016) 041601, [arXiv:1508.03506](#) [hep-th]
10. N. Lashkari and M. Van Raamsdonk, "Canonical Energy is Quantum Fisher Information," *JHEP* **04** (2016) 153, [arXiv:1508.00897](#) [hep-th]
11. N. Lashkari, C. Rabideau, P. Sabella-Garnier, and M. Van Raamsdonk, "Inviolable energy conditions from entanglement inequalities," *JHEP* **06** (2015) 067, [arXiv:1412.3514](#) [hep-th]
12. B. Czech, P. Hayden, N. Lashkari, and B. Swingle, "The Information Theoretic Interpretation of the Length of a Curve," *JHEP* **06** (2015) 157, [arXiv:1410.1540](#) [hep-th]
13. N. Lashkari, "Relative Entropies in Conformal Field Theory," *Phys.Rev.Lett.* **113** (2014) 051602, [arXiv:1404.3216](#) [hep-th]
14. N. Lashkari and J. Simon, "From state distinguishability to effective bulk locality," *JHEP* **1406** (2014) 038, [arXiv:1402.4829](#) [hep-th]

15. N. Lashkari, M. B. McDermott, and M. Van Raamsdonk, "Gravitational dynamics from entanglement 'thermodynamics'," *JHEP* **1404** (2014) 195, arXiv:1308.3716 [hep-th]
16. C. Behan, K. Larjo, N. Lashkari, B. Swingle, and M. Van Raamsdonk, "Energy trapping from Hagedorn densities of states," *JHEP* **1310** (2013) 063, arXiv:1304.7275 [hep-th]
17. N. Lashkari, "Equilibration of Small and Large Subsystems in Field Theories and Matrix Models," *Comm. in Math. Phys.* **333**, 3, 1199 (2015), arXiv:1304.6416 [hep-th]
18. N. Lashkari, D. Stanford, M. Hastings, T. Osborne, and P. Hayden, "Towards the Fast Scrambling Conjecture," *JHEP* **1304** (2013) 022, arXiv:1111.6580 [hep-th]
19. A. Castro, N. Lashkari, and A. Maloney, "Quantum Topologically Massive Gravity in de Sitter Space," *JHEP* **1108** (2011) 040, arXiv:1105.4733 [hep-th]
20. A. Castro, N. Lashkari, and A. Maloney, "A de Sitter Farey Tail," *Phys.Rev.* **D83** (2011) 124027, arXiv:1103.4620 [hep-th]
21. N. Lashkari, "Holographic Symmetry-Breaking Phases in AdS_3/CFT_2 ," *JHEP* **1111** (2011) 104, arXiv:1011.3520 [hep-th]
22. N. Lashkari and A. Maloney, "Topologically Massive Gravity and Ricci-Cotton Flow," *Class.Quant.Grav.* **28** (2011) 105007, arXiv:1007.1661 [hep-th]
23. N. Lashkari and R. H. Brandenberger, "Speed of Sound in String Gas Cosmology," *JHEP* **0809** (2008) 082, arXiv:0806.4358 [hep-th]

Recent Invited Talks

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|----------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Sep 2019 | Department of Physics, University of Cincinnati
Physics Department, University of Kentucky
Tenth regional meeting in String Theory, Crete |
| Aug 2019 | Quantum information in quantum gravity: University of California Davis |
| Jul 2019 | Centre de Recherche Mathematique, Montreal |
| Jun 2019 | Simons Center for Geometry and Physics |
| May 2019 | Department of Physics, Cornell University
City University of New York |
| Apr 2019 | Department of Physics, University of Illinois at Urbana Champagne
City University of New York |

Mar 2019 Advances in quantum field theory, CERN
University of Geneva
Princeton Center for Theoretical Physics

Feb 2019 Purdue University
Department of Physics, Caltech University

Jan 2019 Qubits on the Horizon, Aruba

December 2018 Purdue University
Institute for Advanced Study, Princeton

June 2018 Galileo Galilei Institute, Florence

February 2018 Physics Colloquium, University of Colorado, Boulder
Physics Department, University of Massachusetts, Boston
Physics Department, Harvard University

Dec 2017 Institute for Advanced Study, Princeton

Nov 2017 Physics Department, University of Pennsylvania

Oct 2017 Physics Department, Johns Hopkins University
Physics Department, Princeton University
Physics Department, University of Toronto

Aug 2017 Quantum Information in Quantum Gravity III, University of British Columbia

May 2017 Great Lakes Strings, University of Cincinnati
Physics Department, McGill University

Mar 2017 Perimeter Institute for Theoretical Physics
Physics Department, McGill University

Jan 2017 Berkeley Center for Theoretical Physics, University of Berkeley

Dec 2016 Simons Center for Geometry and Physics, Stony Brook University

Nov 2016 Stanford Institute for Theoretical Physics, Stanford University

Apr 2016 Physics Department, University of California Davis

Mar 2016 Center for Fundamental Laws of Nature, Harvard University
Physics Department, University of Kentucky

Feb 2016 Kavli Institute for Theoretical Physics, Santa Barbara

Jan 2016 Physics Department, Brown University
Physics Department, Yale University
Institute of Physics, University of Amsterdam
Lorentz Center, Leiden Institute of Physics

- Nov 2015 Department of Mathematics, Harvard University
Institute for Advanced Study, Princeton
- Sep 2015 Centre de Recherche Mathematique, Montreal
Center for Fundamental Laws of Nature, Harvard University
Physics Department, Brandeis University
- Aug 2015 Perimeter Institute for Theoretical Physics, Waterloo
- May 2015 Stanford Institute for Theoretical Physics, Stanford University
Institute for Quantum Information and Matter, Caltech

Community Service

Reviewer

Reviews of Modern Physics
Physical Review Letters
Journal of High Energy Physics
Communications in Mathematical Physics

Classical and Quantum Gravity
Journal of Statistical Mechanics: Theory and Exp.
Quantum Info. Processing Conf. subreviewer

Grant Review Panelist

Foundational Questions Institute, "2015 The Physics of What Happens"

Languages

Fluent in English, French and Farsi

References

Patrick Hayden

Professor of Physics, Stanford University
Email: phayden@stanford.edu

Alexander Maloney

Associate Professor of Physics
McGill University
Email: maloney@physics.mcgill.ca

Mark Van Raamsdonk

Professor of Physics
University of British Columbia
Email: mav@phas.ubc.ca

Hong Liu

Professor of Physics, MIT
Email: hong.liu@mit.edu

Hiroshi Ooguri

Fred Kavli Professor of Theoretical Physics
and Mathematics
California Institute of Technology
Email: ooguri@caltech.edu

Edward Witten

Professor of Mathematical Physics
Institute for Advanced Study
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