

Josiah Couch

Boston College
Computer Science Department
St. Mary's Hall, 2nd Floor South
Chestnut Hill, Mass. 02467-3859

Email: josiah.couch@bc.edu
inSpire: <https://inspirehep.net/author/profile/Josiah.D.Couch.1>
LinkedIn: www.linkedin.com/in/josiah-couch/

Experience

Postdoctoral Research Fellow, Computer Science Department, Boston College, 2021-Present.
Supervisor: Prof. José Bento

Education

Ph.D. Physics, University of Texas at Austin, May 2021.
Thesis advisor: Prof. Willy Fischler
GPA: 3.60

B.S. Physics and B.S. Mathematics, Oklahoma State University, August 2013.
GPA: 3.69

Honors and Awards

OGS Summer Only Fellowship Summer 2018
Nominated for UT Services for Students with Disabilities Appreciation Award Fall 2016
OSU Department of Physics Outstanding Senior 2012
OSU Department of Physics Outstanding Junior 2011

Publications and Preprints

J. Couch, Y. Fan and S. Shashi, "Circuit Complexity in Topological Quantum Field Theory," [arXiv:2108.13427 [hep-th]]. 0 citations counted in INSPIRE as of 14 Sep 2021

E. Cáceres, S. Chapman, J. D. Couch, J. P. Hernandez, R. C. Myers and S. M. Ruan, "Complexity of Mixed States in QFT and Holography," JHEP **03**, 012 (2020) doi:10.1007/JHEP03(2020)012 [arXiv:1909.10557 [hep-th]]. 48 citations counted in INSPIRE as of 14 Sep 2021

J. Couch, S. Eccles, P. Nguyen, B. Swingle and S. Xu, "Speed of quantum information spreading in chaotic systems," Phys. Rev. B **102**, no.4, 045114 (2020) doi:10.1103/PhysRevB.102.045114 [arXiv:1908.06993 [cond-mat.stat-mech]]. 12 citations counted in INSPIRE as of 14 Sep 2021

E. Cáceres, J. Couch, S. Eccles and W. Fischler, "Holographic Purification Complexity," Phys. Rev. D **99**, no.8, 086016 (2019) doi:10.1103/PhysRevD.99.086016 [arXiv:1811.10650 [hep-th]]. 22 citations counted in INSPIRE as of 14 Sep 2021

J. Couch, S. Eccles, T. Jacobson and P. Nguyen, "Holographic Complexity and Volume," JHEP **11**, 044 (2018) doi:10.1007/JHEP11(2018)044 [arXiv:1807.02186 [hep-th]]. 30 citations counted in INSPIRE as of 14 Sep 2021

J. Couch, S. Eccles, W. Fischler and M. L. Xiao, "Holographic complexity and noncommutative gauge theory," JHEP **03**, 108 (2018) doi:10.1007/JHEP03(2018)108 [arXiv:1710.07833 [hep-th]]. 59 citations counted in INSPIRE as of 14 Sep 2021

J. Couch, W. Fischler and P. H. Nguyen, "Noether charge, black hole volume, and complexity," JHEP **03**, 119 (2017) doi:10.1007/JHEP03(2017)119 [arXiv:1610.02038 [hep-th]]. 151 citations counted in INSPIRE as of 14 Sep 2021

Conferences and Workshops

Mexicuerdas 2019, Instituto de Ciencias Nucleares, UNAM, Mexico City, Mexico - Speaker

Southwest Strings Meeting 2019, Arizona State University, Tempe, AZ. - Speaker

Joint meeting of the Texas Section of the APS, Texas Section of the AAPT, and Zone 13 of the SPS 2018, University of Houston, Houston, TX - Speaker

Prospects in Theoretical Physics 2018, "From Qubits to Spacetime", Institute for Advanced Study, Princeton, NJ - Participant

Southwest Holography Meeting 2018, University of Texas at Austin, Austin, TX. - Speaker

Joint meeting of the Texas Section of the APS, Texas Section of the AAPT, and Zone 13 of the SPS 2017, University of Texas at Dallas, Richardson, TX - Speaker

"Quantum Information in Quantum Gravity III" (2017), University of British Columbia, Vancouver, BC - Participant

It from Qubit "Complexity and Back Holes" Workshop (2017), Stanford Institute for Theoretical Physics, Stanford University, Stanford, CA - Participant

Talks

"The Speed of Quantum Information Spreading in Chaotic Systems," Mexicuerdas 2019, Instituto de Ciencias Nucleares, UNAM, Mexico City, Mexico
December 2019

"Holographic Complexity and Volume," Southwest Strings Meeting 2019, Arizona State University, Tempe, AZ
February 2019

"Purification complexity in free scalar field theory," Joint Meeting of the Texas Section of the APS, Texas Section of the AAPT, and Zone 13 of the SPS, Houston, TX
October 2018

"Holographic Complexity," Oklahoma State University, Stillwater, OK
April 2018

"Holographic Complexity and Non-Commutative Gauge Theory," Southwest Holography Meeting 2018, University of Texas at Austin, Austin, TX
March 2018

"Holographic Complexity and Non-Commutative Gauge Theory," Joint Meeting of the Texas Section of the APS, Texas Section of the AAPT, and Zone 13 of the SPS, Richardson, TX
October 2017

Teaching Experience

PHY 373 (Quantum Physics I: Foundations) - Grader and Discussion TA	Fall 2015 & 2018, Spring & Fall 2020
PHY 341 (Forensic Science) - Grader	Fall 2017 and 2019
PHY 389K (Graduate Quantum Mechanics I) - Grader	Spring 2019
PHY 362L (Quantum Physics III: Particles and Nuclei) - Grader	Spring 2016 & 2019
PHY 316 (Electricity and Magnetism) - Grader and Discussion TA	Spring 2017 & 2018
PHY 352K (Classical Electrodynamics I) - Grader and Discussion TA	Fall 2016
PHY 103M (Lab for Engineering Physics II) - Teaching Assistant	S/F 2014 & S/Summer 2015
PHY 103N (Lab for Engineering Physics I) - Teaching Assistant	Fall 2013