

List of Publications:

- 1. Circuit complexity in interacting QFTs and RG flows**
Arpan Bhattacharyya, Arvind Shekar, Aninda Sinha,
arXiv: 1808.03105[hep-th], *JHEP* 1810 (2018) 140.
- 2. Probing analytical and numerical integrability: The curious case of $(AdS_5 \times S^5)_\eta$**
Aritra Banerjee, Arpan Bhattacharyya,
arXiv:1805.03071 [hep-th]. *JHEP* 1811 (2018) 124 .
- 3. Robustness of Topological Order in the Toric Code with Open Boundaries**
Amit Jamadagni, Hendrik Weimer, Arpan Bhattacharyya
arXiv:1804.09718 [cond-mat.str-el], *Phys. Rev. B* 98, 235147 (2018).
- 4. Path-Integral Complexity for Perturbed CFTs**
Arpan Bhattacharyya, Pawel Caputa, Sumit R. Das , Nilay Kundu, Masamichi Miyaji, Tadashi Takayanagi
arXiv:1804.01999 [hep-th], *JHEP* 1807 (2018) 086 .
- 5. Entanglement of Purification in Free Scalar Field Theories**
Arpan Bhattacharyya, Tadashi Takayanagi, Koji Umemoto
arXiv:1802.09545 [hep-th], *JHEP* 1804 (2018) 132 .
- 6. Fast spinning strings on η deformed $AdS_5 \times S^5$**
Aritra Banerjee, Arpan Bhattacharyya, Dibakar Roychowdhury
arXiv: 1711.07963 [hep-th], *JHEP* 1802 (2018) 035 .
- 7. Null hypersurface quantization, electromagnetic duality and asymptotic symmetries of Maxwell theory**
Arpan Bhattacharyya, Ling-Yan Hung, Yikun Jiang
arXiv:1708.05606 [hep-th], *JHEP* 1803 (2018) 027.
- 8. Soldering freedom and BMS-like transformations**
Srijit Bhattacharjee, Arpan Bhattacharyya
arXiv:1707.01112 [hep-th], *Phys. Rev. D* 98, 104009 (2018).
- 9. Tensor network and (p-adic) AdS/CFT**
Arpan Bhattacharyya, Ling-Yan Hung, Yang Lei, Wei Li
arXiv: 1703.05445 [hep-th], *JHEP* 1801 (2018) 139 .
- 10. Instantons and Entanglement Entropy**
Arpan Bhattacharyya, Ling-Yan Hung, Charles M. Melby-Thompson
arXiv: 1703.01611 [hep-th] *JHEP* 1710 (2017) 081 .

11. **Inspecting non-perturbative contributions to the Entanglement Entropy via wavefunctions**
Arpan Bhattacharyya, Ling-Yan Hung, P.H.C. Lau, Si-Nong Liu
arXiv: 1608.00145 [hep-th] *Entropy* 19 (2017) no.12, 671 .
12. **Exploring the Tensor Networks/AdS Correspondence**
Arpan Bhattacharyya, Zhe-Shen Gao, Ling-Yan Hung, Si-Nong Liu
arXiv: 1606.00621 [hep-th] *10.1007/JHEP08(2016)086* .
13. **Relative Entropy, Mixed Gauge-Gravitational Anomaly and Causality**
Arpan Bhattacharyya, Long Cheng, Ling-Yan Hung
arXiv: 1605.02553 [hep-th] *JHEP07(2016)121* .
14. **RG Flow and Thermodynamics of Causal Horizons in Higher-Derivative AdS Gravity**
Shamik Banerjee, **Arpan Bhattacharyya**
arXiv: 1509.08475 [hep-th] *JHEP* 1605 (2016) 126 .
15. **Entropy functionals and c-theorems from the second law**
Srijit Bhattacharjee, **Arpan Bhattacharyya**, Sudipta Sarkar, Aninda Sinha.
arXiv: 1508.01658 [hep-th] *Phys. Rev. D* 93, 104045 (2016)
16. **Holographic Lifshitz fluids in 1+1 dimensions**
Arpan Bhattacharyya, Dibakar Roychowdhury.
arXiv: 1503.03254 [hep-th], *J.Phys. A*51 (2018) no.8, 085401 .
17. **Renormalized Entanglement Entropy for BPS Black Branes**
Arpan Bhattacharyya, S. Shajidul Haque, Alvaro Veliz-Osorio.
arXiv: 1412.2568 [hep-th] *Phys. Rev. D* 91, 045026 (2015) .
18. **Viscosity bound for anisotropic superfluids in higher derivative gravity**
Arpan Bhattacharyya, Dibakar Roychowdhury,.
arXiv: 1410.3222 [hep-th] *JHEP* 1503 (2015) 063 .
19. **Attractive holographic c-functions**
Arpan Bhattacharyya, S. Shajidul Haque, Vishnu Jejjala, Suresh Nampuri,
Alvaro Veliz-Osorio.
arXiv:1407.0469 [hep-th], *JHEP* 1411 (2014) 138 .
20. **On entanglement entropy functionals in higher derivative gravity theories**
Arpan Bhattacharyya, Menika Sharma
arXiv:1405.3511 [hep-th], *JHEP* 1410 (2014) 130.

21. **Constraining gravity using entanglement in AdS/CFT**
Shamik Banerjee, **Arpan Bhattacharyya**, Apratim Kaviraj, Kallol Sen, Aninda Sinha
arXiv:1405.3511 [hep-th] , *JHEP 1405 (2014) 029*.
22. **On generalized gravitational entropy, squashed cones and holography**
Arpan Bhattacharyya , Menika Sharma , Aninda Sinha
arXiv:1308.5748 [hep-th], *JHEP 1401 (2014) 021*.
23. **Entanglement entropy in higher derivative holography**
Arpan Bhattacharyya, Apratim Kaviraj, Aninda Sinha
arXiv:1305.6694 [hep-th], *JHEP 1308 (2013) 012*.
24. **Entanglement entropy from surface terms in general relativity**
Arpan Bhattacharyya, Aninda Sinha
arXiv:1305.3448 [gr-qc], *Int.J.Mod.Phys. D22 (2013) 1342020*.
Essay awarded honorable mention in the Gravity Research Foundation 2013 Awards for Essays on Gravitation
25. **Entanglement entropy from the holographic stress tensor**
Arpan Bhattacharyya, Aninda Sinha
arXiv:1303.1884 [hep-th] , *Class.Quant.Grav. 30 (2013) 235032*.
26. **On c-theorems in arbitrary dimensions**
Arpan Bhattacharyya , Ling-Yan Hung , Kallol Sen, Aninda Sinha
arXiv:1207.2333 [hep-th] , *Phys.Rev. D86 (2012) 106006*.

For citations related information:

<http://inspirehep.net/author/profile/Arpan.Bhattacharyya.1>

List of Pre-Prints under review

- **Entanglement of Purification in Many Body Systems and Symmetry Breaking**
Arpan Bhattacharyya, Alexander Jahn, Tadashi Takayanagi, and Koji Umamoto, arXiv: 1902.02369 [hep-th].
- **Post-Quench Evolution of Distance and Uncertainty in a Topological System: Complexity, Entanglement and Revivals**
Tibra Ali, Arpan Bhattacharyya, S.S. Haque, Eugene H.Kim, N. Moynihan, arXiv: 1811:05985 [hep-th]. *Under review* .
- **Time Evolution of Complexity: A Critique of Three Methods**
Tibra Ali, Arpan Bhattacharyya, S.S. Haque, Eugene H.Kim, N. Moynihan, arXiv: 1810:02734[hep-th]. *Under review in JHEP*.
- **Notes on the Causal Structure in a Tensor Network**
Arpan Bhattacharyya, Long Cheng, Ling-Yan Hung, Sirui Ning, Zhi Yang, arXiv:1805.03071 [hep-th]. *Under review in PRD* .