About time and entropy (non-definitive title)

Paolo Di Sia^{1,2}

¹University of Padova, School of Science, Italy
Dept. of Physics & Astronomy, Dept. of Neurosciences
²paolo.disia@unipd.it

Abstract

New ideas about time and entropy in the “physical time-free” Primordial Dynamic Space environment.

Keywords: Space; Time; Entropy; Modelling; EPR-type entanglement; Primordial Dynamic Space (PDS) model.

References:

- ‘t Hooft, G. Time, the Arrow of Time, and Quantum Mechanics. *Front. Phys.* **6**, 81 (2018). <https://doi.org/10.3389/fphy.2018.00081>
- Hawking, S.W. Arrow of time in cosmology, *Phys. Rev. D* **32**, 2489 (1985). <https://doi.org/10.1103/PhysRevD.32.2489>.
- Ben-Naim, A. Entropy and Time, *Entropy* **22**(4), 430 (2020). <https://doi.org/10.3390/e22040430>.
- Lehto, M., Nielsen, H.B., Ninomiya, M. Time translational symmetry, *Phys. Lett. B* **219**(1), 87-91 (1989). [https://doi.org/10.1016/0370-2693\(89\)90843-5](https://doi.org/10.1016/0370-2693(89)90843-5).
- Lucia, U., Grisolia, G., Kuzemsky, A.R. Time, Irreversibility and Entropy Production in Nonequilibrium Systems, *Entropy* **22**(8), 887 (2020). <https://doi.org/10.3390/e22080887>.
- Müller, C., Guan, S., Vogt, N., Cole, J.H., and Stace, T.M. Passive On-Chip Superconducting Circulator Using a Ring of Tunnel Junctions, *Phys. Rev. Lett.* **120**, 213602 (2018). <https://doi.org/10.1103/PhysRevLett.120.213602>, <https://arxiv.org/abs/1709.09826>.
- Fursaev, D.V. Entanglement Entropy in Critical Phenomena and Analogue Models of Quantum Gravity, *Phys. Rev. D* **73**, 124025 (2006). <https://doi.org/10.1103/PhysRevD.73.124025>.

(Other references to add)