Poster No.	Surname(s)	Given name(s)	Affiliation	Title	Abstract
1	Afrasiar	Mir	Indian Institute of Technology Kanpur	Entanglement Negativity Islands in Communicating Black Holes	We obtain the holographic entanglement negativity for bipartite mixed states at a finite temperature in baths described by conformal field theories dual to configurations involving two communicating black holes in braneworld geometries. In this context we analyze the mixed state entanglement structure characterized by the information transfer between the black holes for two separate models. The first model involves communicating black holes in a Karch-Randall braneworld and $BCFT_2$s with two boundaries describing common bath systems for the radiation flux. The second model corresponds to a configuration of two dimensional eternal JT black holes in a braneworld geometry involving two Planck branes coupled through shared bath systems described by CFT_2s. For both the models our results reproduce analogue of the Page curves for the entanglement negativity obtained earlier in the context of random matrix theory and from geometric evaporation in JT black hole configurations.
2	Arai	Hayato	Nagoya University	Pseudo standard entanglement structure cannot be distinguished from standard entanglement structure	An experimental verification of the maximally entangled state ensures that the constructed state is close to the maximally entangled state, but it does not guarantee that the state is exactly the same as the maximally entangled state. Further, the entanglement structure is not uniquely determined in general probabilistic theories even if we impose reasonable postulate about local systems. Therefore, the existence of the maximally entangled state depends on whether the standard entanglement structure is valid. To examine this issue, we introduce pseudo standard entanglement structure as a structure of quantum composite system under natural assumptions based on the existence of projective measurements and the existence of approximations of all standard states. Surprisingly, there exist infinitely many pseudo standard entanglement structures different from the standard entanglement structure. In our setting, any maximally entangled state can be arbitrarily approximated by an entangled state that belongs to our obtained pseudo standard entanglement structure. That is, experimental verification does not exclude the possibility of our obtained pseudo standard entanglement structure that is different from the standard entanglement structure.
3	Choudhury	Sayantan	The Thanu Padmanabhan Centre for Cosmology and Science Popularization (CCSP), SGT University, Gurugram, Haryana, India	Wormhole without averaging from O(N)q-1 tensor model	The SYK model has a wormhole-like solution after averaging over the fermionic couplings in the nearly AdS2 space. Even when the couplings are fixed the contribution of these wormholes continues to exist and new saddle points appear which are interpreted as ''half-wormholes''. In this paper, we will study the fate of these wormholes in a model without quenched disorder namely a tensor model with O(N)q−1 gauge symmetry whose correlation function and thermodynamics in the large N limit are the same as that of the SYK model. We will restate the factorization problem linked with the wormhole threaded Wilson operator, in terms of global charges or non-trivial cobordism classes associated with disconnected wormholes. Therefore for the partition function to factorize especially at short distances, there must exist certain topological defects which break the global symmetry associated with wormholes and make the theory devoid of global symmetries. We will interpret these wormholes with added topological defects as our ''half-wormholes''. We will also comment on the late time behavior of the spectral form factor, particularly its leading and sub-leading order contributions coming from higher genus wormholes in the gravitational sector. Finally we will show how, the other non-trivial saddles from ''half-wormhole'' dominate and give rise to unusual thermodynamics in the bulk sector due to non-perturbative effects.
4	Čubrović	Mihailo	Institute of Physics Belgrade	Classical integrability and quantum chaos of open string dynamics	We consider an open string in AdS space in various configurations corresponding to light and heavy quarks in CFT and show that its dynamics is always integrable in sufficiently symmetric configurations. Despite this fact, its finite-time Lyapunov exponent its nonzero and roughly saturates the chaos bound. We explain this by considering the quantum dynamics, i.e. scattering amplitudes and energy levels, which show clear presence of quantum chaos. The existence of contraints makes the open string an unusual system, where chaos is stronger (for most systems it is weaker) in the quantum regime.
5	-	-	-	-	Cancelled
6	Fujita	Mitsutoshi	Sun Yat-Sen University	Holographic entanglement entropy of the double Wick rotated BTZ black hole	In this paper, we analyze the holographic covariant entanglement entropy in the double Wick rotated version of a rotating BTZ black hole (3 dimensional Kerr-AdS solution), where the periodicity of Euclidean time and spatial direction are changed. The dual field theory has negative energy in the Lorentzian signature. The holographic entanglement entropy agrees with its CFT counterpart, which is obtained by a conformal transformation of the correlation functions of twisted operators.
7	Li	Yue-Zhou	McGill University	Causality constraints on corrections of Einstein gravity	Causality and unitarity as old principles, together with modern techniques, can put strong constraints on EFT. We think of modifications of Einstein gravity as low-energy gravity EFT and demonstrate causality and unitarity can constrain the modifications by using dispersive sum rules of 2->2 amplitudes. Our bounds imply that gravitational interactions must shut off uniformly in the G->0 limit, and prove the scaling with higher-spin mass. In D=5, we also provide numerical bounds on central charges in holographic CFTs.

8	Matsuno	Ken	Osaka Metropolitan University	Hawking radiation of scalar particles from four-dimensional Einstein-Gauss-Bonnet black holes based on a generalized uncertainty principle	We study Hawking radiation from four-dimensional charged Einstein-Gauss-Bonnet black hole by tunneling of charged scalar particles. We consider phenomenological quantum gravity effects predicted by generalized uncertainty principle with minimal measurable length. We derive corrections of Hawking temperature to general relativity, which are related to energy of emitted particle, Gauss-Bonnet coupling constant, charge of black hole and existence of minimal length in the black hole geometry. We obtain some known Hawking temperatures in four-dimensional black hole spacetimes by taking limits in modified temperature. We show that generalized uncertainty principle may slow down the increase of Hawking temperature due to radiation, which may lead to thermodynamic stable remnant of the order of Planck mass after evaporation of four-dimensional Einstein-Gauss-Bonnet black hole.
9	Moreno	Javier	Pontificia Universidad Católica de Valparaíso	Shape-dependence of entanglement entropy in three dimensional CFTs	The entanglement entropy corresponding to a smooth region in general three-dimensional CFTs contains a constant universal term. For a disk region, this term coincides with the free energy on a three sphere and provides a renormalization group monotone for general theories. We argue this finite contribution is globally minimized by disks with respect to arbitrary regions and for general theories. The proof makes use of the strong subadditivity of entanglement entropy and the geometric fact that one can always place an osculating circle within a given smooth entangling region. In addition, we provide accurate approximations of the finite contribution in general CFTs in the case of elliptic regions as well as numerically for more general shapes in the so-called “Extensive Mutual Information model”, verifying the general bound.
10	Mori	Takato	KEK	Holographic local operator quenches in BCFTs	We present a gravity dual of local operator quench in a two-dimensional CFT with conformal boundaries. This is given by a massive excitation in a three-dimensional AdS space with the end of the world brane (EOW brane). Due to the gravitational backreaction, the EOW brane gets deformed in a nontrivial way. We show that the energy-momentum tensor and entanglement entropy computed from the gravity dual and from the BCFT in the large c limit match perfectly. Interestingly, this comparison avoids the folding of the EOW brane in an elegant way. This talk is based on JHEP05(2022)060 [arXiv:2203.03851].
11	Osawa	Yuki	Nagoya University	Particle Creation and Entanglement Structure in the Dispersive Model	The theory of Hawking radiation has a problem called Trans-Planckian problem. One of the approaches to this problem is to consider a dispersive wave with a cutoff of the wave number by adding the higher order derivative term into the wave equation. This kind of modification induces additional modes called Planckian modes and many researches showed that the behavior of Hawking radiation is modified but the thermality of the radiation still remains in the low energy regimes. We analyzed the power spectrum of the radiation and the partner structure of modes for the steplike geometry with and without the horizon. In this talk, I will discuss the behavior and the thermality of the radiation from the viewpoint of the partner structure of the modes.
12	Yadav	Gopal	Department of Physics, Indian Institute of Technology Roorkee	Page Curves of Reissner-Nordstrøm Black Hole in HD Gravity	My talk is based on arXiv:2204.11882. I will explain the Page curves computation of an eternal Reissner-Nordstrøm black hole in the presence of higher derivative terms which are ${cal O}(R^2)$ terms plus Maxwell term and Einstein-Gauss-Bonnet gravity plus Maxwell term, in four dimensions. In both the cases entanglement entropy of the Hawking radiation in the absence of island surface is increases linearly with time. After including contribution from the island surface, we found that after the Page time entanglement entropy of the Hawking radiation in both the cases reaches a constant value which is the twice of the Bekenstein-Hawking entropy of the black hole and we obtained the Page curves. Further we found that Page curves will appear at later or earlier time when the Gauss-Bonnet coupling increases or decreases. As a consistency check, in the limit of vanishing GB coupling we obtain the Page curve of the Reissner-Nordstr?m black hole obtained in arXiv:2101.06867.
13	Yamashika	Shion	Department of physics, Chuo university	Entanglement dynamics of bosons in a 1D optical lattice	Motivated by the experimental developments of ultracold atoms, we theoretically investigate the entanglement dynamics of bosons in an optical lattice. Specifically, we calculate the time-evolution of the 2nd-order Rényi entropy (RE) when the system is quenched into the Mott-insulating state from a product state. Developing the effective theory based in the generalized Jordan-Wigner transformation, we derive the analytic expression for the time-evolution of the RE. We reveal the entire dynamics of RE and compare it with the quasi-particle picture for entanglement dynamics proposed by Calabrese and Cardy.