Physik-Combo

Report of Contributions

https://indico.tpi.uni-jena.de/e/Combo-Spring2021

Contribution ID: **1** Type: **not specified**

Opening address

Monday, 22 March 2021 08:50 (10 minutes)

Presenter: GIES, Holger (TPI, FSU Jena)

Contribution ID: **2** Type: **not specified**

Towards exact FRG flows of a UV-interacting scalar field theory

Monday, 22 March 2021 09:00 (30 minutes)

Presenter: ZIEBELL, Jobst

Contribution ID: **3** Type: **not specified**

Towards the characterization of wedge-local observables in integrable models with bound states

Monday, 22 March 2021 09:30 (30 minutes)

We discuss the structure of local observables in 1+1-dimensional quantum integrable models. An important advantage in these models is the existence of an “interacting Fock-space”, generated by interacting creation and annihilation operators (so-called Zamolodchikov operators). The observables in question are (usually infinite) series in Zamolodchikov operators with certain functions (”form factors”) as coefficients. However, locality of this form factor expansion is hard to establish as convergence of products of expansions is difficult to control. A solution to this problem can be the use of a wedge-local field, i.e., with a weaker localization. This can be expressed as a finite “expansion” in Zamolodchikov operators, taking a form similar to a free field. Making use of this intermediate object, local observables have been characterized in terms of infinite expansions in scalar models without bound states. We present a generalization of this approach to models with bound states
(e.g., the Bullough-Dodd or Z(N)-Ising model). In these models, the wedge-local field loses its simple “free field like” form due to an additional unbounded term with intricate domain properties. These complications increase in models with composite particles, e.g., the Z(4)-Ising model. Recent advances in this direction are presented.

Presenter: SHEDID, Karim

Contribution ID: **4** Type: **not specified**

Semi-classical BMS-blocks from the Oscillator Construction

Monday, 22 March 2021 10:00 (30 minutes)

Presenter: WÖLFL, Katharina

Contribution ID: **5** Type: **not specified**

Spacetime singularities and cosmic censorship I

Monday, 22 March 2021 11:00 (1 hour)

Presenter: ANDREASSON, Håkan

Contribution ID: **6** Type: **not specified**

Cosmology and Inflation I

Monday, 22 March 2021 14:30 (1 hour)

Presenter: PAJER, Enrico

Contribution ID: **7** Type: **not specified**

A regularized perturbative treatment of BRST and Background Effective Action

Monday, 22 March 2021 16:45 (30 minutes)

Presenter: GKIATAS, Dimitrios

Contribution ID: **8** Type: **not specified**

Temperature and entropy-area relation of quantum matter near spherically symmetric outer trapping horizons

Monday, 22 March 2021 16:15 (30 minutes)

Presenter: KURPICZ, Fiona

Contribution ID: **9** Type: **not specified**

Disc of dust: quasi-stationary routes to black holes in Einstein-Maxwell theory

Tuesday, 23 March 2021 09:00 (30 minutes)

Presenter: RUMLER, David

Contribution ID: **10** Type: **not specified**

Conservation laws and the Discontinuous Galerkin method

Tuesday, 23 March 2021 09:30 (30 minutes)

Presenter: ATTENEDER, Florian

Contribution ID: **11** Type: **not specified**

Hyperbolic formulations of GR

Tuesday, 23 March 2021 10:00 (30 minutes)

Presenter: CORS, Daniela

Contribution ID: **12** Type: **not specified**

Spacetime singularities and cosmic censorship II

Tuesday, 23 March 2021 11:00 (1 hour)

Presenter: ANDREASSON, Håkan

Contribution ID: **13** Type: **not specified**

Cosmology and Inflation II

Tuesday, 23 March 2021 14:30 (1 hour)

Presenter: PAJER, Enrico

Contribution ID: **14** Type: **not specified**

What happens at the end of Hawking's evaporation?

Tuesday, 23 March 2021 16:15 (1 hour)

There are three distinct regions where quantum gravity becomes non-negligible in a black hole spacetime. I illustrate a number of indications we have about what happens in each of them, coming both from the classical Einstein equations and from loop quantum gravity. These point all to an interesting scenario: long living remnants stabilized by quantum gravity, formed by a large and slowly decreasing interior enclosed into a small anti-trapping horizon. Contrary to what too often stated, the scenario offers also a proof of principle that there is no tension between unitarity and the equivalence principle: the tension comes from postulating a version of holography which is too strong: a fad, for which there is no solid physical evidence.

Presenter: ROVELLI, Carlo

Contribution ID: **15** Type: **not specified**

Spin-foam models of Lorentzian space-time: Emerging geometry at the semiclassical limit

Wednesday, 24 March 2021 09:00 (30 minutes)

Presenter: SIMAO, José

Contribution ID: **16** Type: **not specified**

Chiral Spiral for finite number of flavors

Wednesday, 24 March 2021 09:30 (30 minutes)

Presenter: MANDL, Michael

Contribution ID: **17** Type: **not specified**

Attenuation of energy relaxation in chiral one-dimensional quantum channels

Wednesday, 24 March 2021 10:00 (30 minutes)

Presenter: FISCHER, Stefan Georg

Contribution ID: **18** Type: **not specified**

Spacetime singularities and cosmic censorship III

Wednesday, 24 March 2021 11:00 (1 hour)

Presenter: ANDREASSON, Håkan

Contribution ID: **19** Type: **not specified**

Cosmology and Inflation III

Wednesday, 24 March 2021 14:30 (1 hour)

Presenter: PAJER, Enrico

Contribution ID: **20** Type: **not specified**

Combo Colloquium: ”What have we learned so far in quantum gravity?”

Wednesday, 24 March 2021 16:15 (1 hour)

The problem of quantum gravity is open because we do not have a preferred complete theory that has found direct empirical support. But there is a reliable theory of quantum gravity below the Planckian energy and there are consistent tentative quantum gravity theories; hence quantum theory and general relativity are not incompatible. Furthermore, there are recent empirical observations that disconfirm tentative theories, and there is also a concrete possibility to observe a quantum gravity phenomenon in the lab, in a not too distant future, hence research in quantum gravity is
connected to observations and experiments.

Presenter: ROVELLI, Carlo

Contribution ID: **21** Type: **not specified**

Lecture Q&A

Wednesday, 24 March 2021 12:00 (15 minutes)

Contribution ID: **22** Type: **not specified**

Lecture Q&A

Wednesday, 24 March 2021 15:30 (15 minutes)

Contribution ID: **23** Type: **not specified**

Lecture Q&A

Tuesday, 23 March 2021 17:15 (15 minutes)

Contribution ID: **24** Type: **not specified**

Lecture Q&A

Tuesday, 23 March 2021 12:00 (15 minutes)

Contribution ID: **25** Type: **not specified**

Lecture Q&A

Tuesday, 23 March 2021 15:30 (15 minutes)

Contribution ID: **26** Type: **not specified**

Lecture Q&A

Monday, 22 March 2021 15:30 (15 minutes)

Contribution ID: **27** Type: **not specified**

Lecture Q&A

Monday, 22 March 2021 12:00 (15 minutes)