

Asymptotic Safety meets Particle Physics & Friends

Report of Contributions

Contribution ID: 1

Type: **not specified**

Welcome

Monday 18 December 2023 14:00 (15 minutes)

Presenter: LITIM, Daniel (University of Sussex)

Session Classification: QFT

Contribution ID: 2

Type: **not specified**

QCD, Dilaton and Infrared Fixed Points

Monday 18 December 2023 14:15 (45 minutes)

I will review the standard conformal window picture and explore the possibility that the chirally broken phase (QCD) is amenable to an (non-perturbative) infrared fixed point interpretation. I will show that these assumptions lead to a consistent picture and comment on N=1 supersymmetric gauge theories. In a second part I will further speculate on the presence of a dilaton, and outline some of its attractive features.

- 1) compatibility of conformality with hadron masses
- 2) a solution to the Goldstone improvement problem
- 3) investigate the dilaton candidate of QCD, the $\sigma/f_0(500)$ meson

At last I will give an outlook of how the Higgs can be interpreted as a dilaton in this context and what the open problems are.

Presenter: ZWICKY, Roman (Edinburgh University)

Session Classification: QFT

Contribution ID: 3

Type: **not specified**

Fixed Points and Conformal Windows of 4d Gauge Theories

Monday 18 December 2023 15:00 (30 minutes)

Presenter: RIYAZ, Nahzaan (University of Sussex)

Session Classification: QFT

Contribution ID: 4

Type: **not specified**

UV fixed points in 5d gauge theories

Monday 18 December 2023 16:00 (45 minutes)

Presenter: DI PIETRO, Lorenzo

Session Classification: QFT

Contribution ID: 5

Type: **not specified**

Spectral Functions and Conformal Windows

Monday 18 December 2023 16:45 (45 minutes)

Presenter: REICHERT, Manuel

Session Classification: QFT

Contribution ID: 6

Type: **not specified**

Intertwined spin vestigial orders

Tuesday 19 December 2023 09:30 (45 minutes)

Presenter: JANSSEN, Lukas

Session Classification: Condensed Matter

Contribution ID: 7

Type: **not specified**

From Nordic Walking in Wess-Zumino-Witten Theory to Deconfined Pseudocriticality

Tuesday 19 December 2023 10:15 (30 minutes)

Presenter: HAWASHIN, Bilal

Session Classification: Condensed Matter

Contribution ID: 8

Type: **not specified**

Absence of SO(4) quantum criticality in Dirac semimetals at two-loop order

Tuesday 19 December 2023 14:00 (30 minutes)

Presenter: UETRECHT, Max

Session Classification: QFT / Condensed Matter

Contribution ID: 9

Type: **not specified**

Spontaneous breaking of scale symmetry & conformal windows in critical fermionic theories

Tuesday 19 December 2023 11:15 (45 minutes)

Presenter: CRESSWELL-HOGG, Charlie

Session Classification: Condensed Matter

Contribution ID: **10**

Type: **not specified**

Conformal bootstrap meets (quantum) phase transitions

Tuesday 19 December 2023 15:45 (45 minutes)

Presenter: RONG, Junchen

Session Classification: QFT / Condensed Matter

Contribution ID: 11

Type: **not specified**

Analog gravity in moiré Dirac materials

Tuesday 19 December 2023 12:00 (30 minutes)

Presenter: SIMEÓN, Mireia Tolosa

Session Classification: Condensed Matter

Contribution ID: 12

Type: **not specified**

Vacuum stability of gauge-Yukawa theories

Tuesday 19 December 2023 16:30 (30 minutes)

Presenter: RIZZO, Daniele (NCBJ)

Session Classification: QFT / Condensed Matter

Contribution ID: 13

Type: **not specified**

Exploring the conformal window and infrared fixed points using lattice field theory

Tuesday 19 December 2023 14:30 (45 minutes)

Presenter: WITZEL, Oliver (Universität Siegen)

Session Classification: QFT / Condensed Matter

Contribution ID: 14

Type: **not specified**

Classifying large N limits of multiscalar theories by algebra

Tuesday 19 December 2023 17:00 (30 minutes)

Presenter: FLODGREN, Nadia

Session Classification: QFT / Condensed Matter

Contribution ID: 15

Type: **not specified**

Gravitational waves from cosmological phase transitions

Wednesday 20 December 2023 09:30 (45 minutes)

Presenter: KONSTANDIN, Thomas (Deutsches Elektronen-Synchrotron (DE))

Session Classification: BSM

Contribution ID: 16

Type: **not specified**

Naturally small neutrino mass with asymptotic safety and gravitational-wave signatures

Wednesday 20 December 2023 10:15 (30 minutes)

Presenter: CHIKKABALLI, Abhishek (National Center for Nuclear Research, Warsaw)

Session Classification: BSM

Contribution ID: 17

Type: **not specified**

The LCDM desert and populating dark sectors after BBN

Wednesday 20 December 2023 11:15 (45 minutes)

Presenter: SCHMALTZ, Martin

Session Classification: BSM

Contribution ID: **18**

Type: **not specified**

Momentum-dependent field redefinitions in Asymptotic Safety

Wednesday 20 December 2023 14:00 (45 minutes)

Presenter: KNORR, Benjamin

Session Classification: Gravity

Contribution ID: 19

Type: **not specified**

Quantum Gravity to cubic order in the essential scheme

Wednesday 20 December 2023 14:45 (45 minutes)

Presenter: Mr KLUTH, Yannick (University of Manchester)

Session Classification: Gravity

Contribution ID: 20

Type: **not specified**

Spontaneous breaking of chiral symmetry as consistency test of quantum gravity

Wednesday 20 December 2023 16:00 (45 minutes)

Presenter: PAZZINI DE BRITO, Gustavo (Southern Denmark University)

Session Classification: Gravity

Contribution ID: 21

Type: **not specified**

Quantum Einstein Cubic Gravity

Wednesday 20 December 2023 16:45 (30 minutes)

Presenter: ASSANT, Gabriel

Session Classification: Gravity

Contribution ID: 22

Type: **not specified**

Exploring the scalar potential at the LHC and beyond

Thursday 21 December 2023 09:30 (45 minutes)

Presenter: MOORTGAT-PICK, Gudrid

Session Classification: BSM

Contribution ID: 23

Type: **not specified**

Probing the Higgs portal into vacuum stability

Thursday 21 December 2023 10:15 (30 minutes)

Presenter: HÖHNE, Tim

Session Classification: BSM

Contribution ID: 24

Type: **not specified**

Beyond the WIMP

Thursday 21 December 2023 11:15 (45 minutes)

Presenter: SMIRNOV, Juri

Session Classification: BSM