Universität Bielefeld

Fakultät für Physik
Theoretische Physik

Research Training Group
Graduiertenkolleg
Models of Gravity

Colloquium of the RTG 1620 "Models of Gravity"

June 12, 2013 Bielefeld University

contact persons: Dominika Konikowska, Dominik Schwarz

room D3-150

10.30: coffee

10.45: board members and PIs meeting

11.30: students meeting

room D01-249

13.00: lunch

room A2-125

14.00: Sabine Hossenfelder (NORDITA)

Minimal Length Scale Scenarios for Quantum Gravity

15.00: Nicolas Borghini (Bielefeld University)

String theory inspired approaches to heavy-ion collisions

16.00: coffee break

16.30: Erminia Calabrese (University of Oxford)

Extracting cosmological informations from the Cosmic Microwave Background

[downtown]

18.30: dinner (at a restaurant close to the train station)

How to reach Bielefeld University: Leave the train station (Bielefeld Hbf) in the direction of the city center. Across the square you will find an underground tram stop "Hauptbahnhof". Take line 4 towards "Lohmannshof", getting off at the station "Universität". The escalator and the partially glass-covered pedestrian bridge lead to the main entrance. Inside the university building, take the stairs up and look for letters over the exits from the main hall - marking the blocks. E.g. A2-125 designates block A, 2nd floor, room 125.

For more information and maps see http://www2.physik.uni-bielefeld.de/1237.html

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June 12, 2013 **Bielefeld University, room A2-125**

contact persons: Dominika Konikowska, Dominik Schwarz

14.00: Sabine Hossenfelder (NORDITA)

Minimal Length Scale Scenarios for Quantum Gravity

Abstract: Is there a limit to how well we can resolve structures? In my talk I will look at the question whether nature features a fundamentally minimal length. I will summarize what indications we have from thought experiments and existing approaches to quantum gravity for the existence of a minimal length scale. And I will discuss how one can incorporate a minimal length into quantum mechanics and quantum field theory.

15.00: Nicolas Borghini (Bielefeld University)

String theory inspired approaches to heavy-ion collisions

Abstract: Collisions between ultrarelativistic heavy nuclei in the laboratory lead to the formation of droplets of a hot soup of quarks and gluons, similar to the matter which filled the microseconds-old Universe. The properties of that soup are governed by the gauge theory of strong interactions, QCD, and should therefore be calculable within its framework. Yet the created droplets are highly dynamical, and to match their experimentally inferred properties with theoretical computations, it has proven fruitful to invoke ideas and methods stemming from string theory, in particular the gauge/gravity correspondence. After briefly introducing some features of high-energy heavy-ion collisions, I shall present a few examples of application of the correspondence to their description and to the characterization of the created medium.

16.30: Erminia Calabrese (University of Oxford)

Extracting cosmological informations from the Cosmic Microwave Background

Abstract: Over the past few decades the quantity and the quality of CMB data increased significantly, allowing to obtain, from their analysis, very accurate constraints on theoretical speculations about the Universe content and evolution. In this presentation I will review the basic of CMB physics, going from theoretical models to delivered data and report recent results from the ACT and Planck experiments.