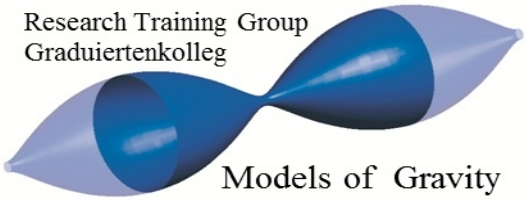
RTG Colloquium



Date: May 8, 2013

Venue: Jacobs University Bremen

10:00 - 12:00 Students' Seminar (see attached)

Campus Center/IRC, Conference Room

12:00 - 13:00 Board Meeting (Board members and PIs only)

Campus Center/IRC, Seminar Room

PIs and Board Members: PLEASE MEET ME IN THE FOYER OF THE IRC at 11:55

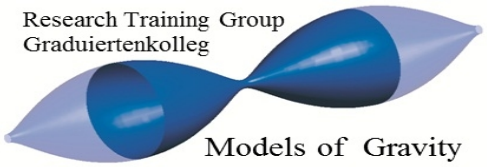
13:00 - 14:00 Joint lunch – Buffet

Campus Center/IRC, Conference Room

14:00 - 17:30 Colloquium Talks (see attached)

Campus Center/IRC, Conference Room

RTG Colloquium



Date: May 8, 2013

Venue: JUB, **Campus Center/IRC, Conference Room**

14:00-15:00 **Stam Nicolis** (University of Tours, France)

Arithmetic AdS2/CFT1 Holography:
Quantum Aspects in the Bulk and on the Boundary

A major challenge for contemporary physics is the statistical description of the degrees of freedom, whose dynamics accounts for black hole entropy. The fact that this entropy is finite implies that the phase space of these degrees of freedom is finite-dimensional.
We discuss the properties of the near-horizon spacetime geometry, that are relevant for the construction of the requisite evolution operators, in the sense of classical and quantum mechanics, within the framework of the AdS/CFT correspondence. We will show, in particular that it is possible to perform semi-classical calculations in a controlled fashion from both sides of the correspondence. In the process we will find that the dynamics on the horizon can be chaotic and we will try to understand, quite precisely, what this implies for our understanding of black holes, gravity and quantum mechanics.

15:00-16:00 **Dominika Konikowska** (University of Bielefeld)

Extending gravity and extra dimensions

We will present a short introduction to extended theories of gravity in higher-dimensional spacetimes, focusing in particular on brane scenarios and the potential relation to string theories. We will show how a viable theory of dilaton gravity can be constructed in this context, and a covariant 4d effective description derived subsequently. Next, we will study a simple example of a dilaton gravity theory in a 5d brane scenario, which turns out to be strongly constrained by null results in the searches for a time variation of Newton's constant - and a simple description of the cosmological large-scale structure.

16:00-16:30 Coffee break – Conference Room Campus Center/IRC

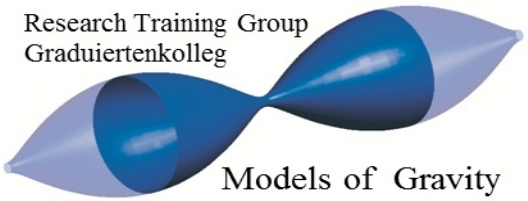
16:30-17:30 **Sayan Chakrabarti** (CENTRA Lisbon, Portugal)

Perturbations in black hole space-times

In this talk, I will discuss black hole perturbations with a focus to quasinormal modes. Quasinormal modes are the response of black holes to external perturbations. Perturbed black hole systems are intrinsically dissipative and because of this, the modes are complex. Apart from the usual importance in astrophysical scenarios, these modes are of importance to study quantum aspects of black holes as well as gauge-gravity duality. Finally, within the perturbative approach, I will discuss floating orbit scenario. It is generally expected that orbiting bodies around a rotating black hole will lose energy in gravitational waves, slowly inspiralling into the black hole. Instead, we show that if the orbiting body is coupled to a scalar field, then it leads to a surprising effect: because of superradiance, matter can hover into 'floating orbits' for which the net gravitational energy loss at infinity is entirely provided by the black hole's rotational energy.

All talks are 50 + 10 minutes

RTG Colloquium



STUDENTS' SEMINAR

Date: May 8, 2013, 10:00-12:00

Venue: Jacobs University

Campus Center/IRC, Conference Room

Programme:

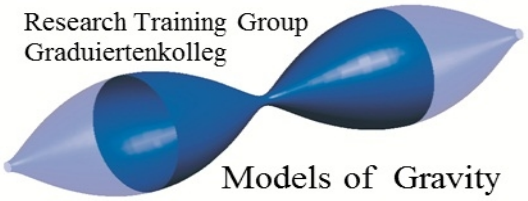
Sardor Tojiev (Jacobs University Bremen)

Stability of charged solitons in 5d AdS

Bintoro Subagyo (University Oldenburg)

Gravitating Vortons

RTG Colloquium



How to reach Jacobs University?

BY CAR

Navigation system: Campus Ring 1, 28759 Bremen
(or Bruno-Bürgel-Straße 27 or 38, 28759 Bremen)

Travelling from the South:
Autobahn 27 direction Cuxhaven, Bremerhaven
Exit Bremen-Nord (Burglesum)
At intersection turn left onto the A 270, direction Elsfleth/HB-Blumenthal
Leave Autobahn at exit Bremen-St. Magnus/Grohn/Jacobs University
At end of exit, turn left in direction U 5, Grohn, Jacobs University
At next traffic light turn left into Schönebecker Straße
After the bridge, turn into Bruno-Bürgel-Straße, the second left
After approx. 300 meters you find the entrance to Jacosb University on the left

Travelling from the North:
Autobahn 27 direction Bremen
Exit Ihlpohl
Follow the A 270, direction Bremen-Vegesack
Leave Autobahn at exit Bremen-St. Magnus/Grohn/Jacobs University
At end of exit, turn left in direction U 5, Grohn, Jacobs University
At next traffic light turn left into Schönebecker Straße
After the bridge, turn into Bruno-Bürgel-Straße, the second left
After approx. 300 meters you find the entrance to Jacosb University on the left

BY RAIL

Trains from Bremen's main station (Hauptbahnhof) to Bremen-Nord leave **every 30 minutes**.
Take the train towards Bremen-Vegesack and get off at Bremen-Schönebeck station (6th stop).
From Schönebeck station it is a five-minute walk down Schönebecker Straße and Bruno-Bürgel-Straße.

BY PLANE

Travelling from the airport:
If you arrive by plane at Bremen Airport, take tram number 6 and get off at Bremen's main station (Hauptbahnhof) then follow steps above for rail journey.

Research Training Group
Graduiertenkolleg
Models of Gravity

DIRECTIONS ON CAMPUS

Enter Main gate and follow signs; pass by Reimar Luest Hall; Campus Center/IRC is the next building on the left with big green glass front

For questions please contact: Priv.-Doz. Dr. Betti Hartmann

Room 66, Research 3

b.hartmann@jacobs-university.de

phone: 0421 – 200 3149