

## **Prof. Dr. Lars Andersson**

### **Geometry and Analysis of Black Hole Spacetimes**

**ZEIT:**

8.2.2015, 9:00 Uhr - 12.2.2015, 13:30 Uhr

**ORT:**

Universität Potsdam  
Campus "Neues Palais"  
Haus 8, Raum 0.64  
Am Neuen Palais 10, 14469 Potsdam

Black holes play a central role in general relativity and astrophysics. The problem of proving the dynamical stability of the Kerr black hole spacetime, which describes a rotating black hole in vacuum, is one of the most important open problems in general relativity. Following an introduction to the Kerr geometry, I will introduce some techniques for analyzing the dynamics of particles and fields in the Kerr spacetime. The Carter constant, a 4th constant of the motion for geodesics in the Kerr spacetime, and related geometric structures play a central role in this analysis. Some familiarity with differential geometry will be assumed but the necessary concepts from general relativity will be introduced during the course.

The detailed schedule:

Monday: 10-11:30, 13-14:30, 15:15-16:45

Tuesday: 10-11:30

Wednesday: 10-11:30, 13-14:30, 15:15-16:45

Thursday: 13:30-15, 15:30-17

Friday 10-11:30 13-14:30

**Kontakt:**

Humboldt-Universität zu Berlin . Institut für Mathematik  
SFB 647 . Unter den Linden 6 . 10099 Berlin  
Tel. +49 30 2093 1804 . Fax. +49 30 2093 2727  
sfb647@math.hu-berlin.de