



## SFB-Seminar

### ZEIT:

26.10.2010, 16:00 Uhr - 19:00 Uhr

### ORT:

HU

Institut für Sportwissenschaft  
Philippstr. 13, 10115 Berlin (Mitte)  
Haus 11, Hörsaal 5

### PROGRAMM:

16:00 - 17:00 **Prof. Dr. Jan Metzger**

#### **Geometry of isolated systems in General Relativity**

I will describe the interaction of geometric and physical properties in initial data sets for General Relativity. I will mostly consider isolated systems which can be modelled by asymptotically flat manifolds. The general question is how physical parameters like mass and linear momentum interact

with geometrically defined objects near infinity. One possibility I consider are foliations of surfaces satisfying certain geometric PDEs. Alternatively, studying the asymptotic behavior of geometrically defined variational problems such as the isoperimetric profile or the behaviour of the Wilmore energy for surfaces near infinity yields physical information.

17:00 - 17:30 Kaffeepause

17:30 - 18:30 **Prof. Dr. Dirk Kreimer**

#### **The fine structure of infinity**

The description of the physical law by local fields started with classical fields a long time ago, to the delight of physicists and mathematicians alike.

That quantized fields describe the electroweak and strong interactions

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successfully is a more recent message, and demanded an understanding of the infinities which accompany local interactions. This renormalization program is only now slowly finding its mathematical identification. We will overview this development, and discuss consequences for the incorporation of gravity into the picture, and the well-being of the notion of fields.

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