



## Seminar des SFB 647

### **ZEIT:**

1.12.2009, 16:00 Uhr - 19:00 Uhr

### **ORT:**

Urania Berlin e. V.  
An der Urania 17  
10787 Berlin  
Room: Loft

### **PROGRAMM:**

16:00 - 17:00 **Dr. Christoph Stephan**

#### **Noncommutative Geometry, Spectral Geometry and Particle Physics**

Alain Connes' noncommutative geometry (NCG) allows to unify the classical Yang-Mills-Higgs theory and General relativity in a single geometrical framework. Much of the physical information of particle models is obtained by the "spectral action" which can be computed from the eigenvalues of the generalised Dirac operator. This unification implies restrictions on the couplings of the Standard Model (SM) at a given cut-off energy. This reduces the number of free parameters, compared to the classical SM.

I will give an introduction to the basic ideas of NCG, of the spectral action and its application to particle physics. Furthermore I plan to present an overview of the most recent developments (particle model building in NCG, Dirac operators with torsion, etc.) and I will also comment on latest experimental data relevant to the NCG framework.

17:00 - 17:30 Kaffeepause

17:30 - 18:30 **Dr. Wellington Galleas**

#### **Exact results and Yang-Baxter methods**

##### **Kontakt:**

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The Yang-Baxter equation has played the central whole in the modern theory of integrable systems and for derivation of exact results. In this talk I shall discuss how the Yang-Baxter equation has been and how it can still be explored in order to provide exact solutions of integrable systems with a variety of boundary conditions.

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