



Seminar of the Work Group  
Nonlinear Partial Differential Equations  
SS 23

**June 13th, 2023, 14:00 - 15:30**  
**Seminar room: SR 3.068**

## Anderson localization for random Dirac operators

Sylvain Zalczer, KIT

### **Abstract**

The Dirac operator, originally introduced to describe the motion of a relativistic electron, has been given in the last ten years a lot of attention since it appeared to be a good model for graphene. I will present the results I got with J.-M. Barbaroux (Toulon) and H. D. Cornean (Aalborg), where a random potential is added to the Dirac operator. We prove that, in a simple case, the phenomenon called Anderson localization happens : the disordered material becomes an insulator in a spectral region where it should be conducting. The proof uses a technique called "multiscale analysis", in the version developed by Germinet and Klein.