

IMPRS EPP

**18th Block Course
of the
International Max Planck Research School
on Elementary Particle Physics**

February 7th – February 10th, 2012

Max-Planck-Institut für Physik, Freimann

10:30 AM - 12.30 PM, Main Auditorium

Dr. Jörg Jäckel

IPPP Durham

An Introduction to SUSY Breaking - From Theory to the LHC

The lectures will give an overview of SUSY breaking, how it can be realized and what would be the consequences that can be observed at the LHC. We will start with the basic conditions for SUSY breaking and illustrate them in simple models. Going beyond these we will then discuss theoretical (and phenomenological) constraints that make SUSY breaking difficult but also ways to avoid them. This will eventually lead to a picture where SUSY is broken in an additional “hidden sector”. SUSY breaking then has to be mediated to the particles of the Standard Model sector. We will then see how this can be done, e.g., by gravity or by gauge interactions. Finally we study the phenomenological implications at the LHC of SUSY breaking and its mediation.

No registration is needed.