Workshop on Seiberg-Witten Theory

ZEIT:
2.12.2006, 10:00 Uhr - 18:00 Uhr

ORT:
Freie Universitaet Berlin (ZIB)
Takustr. 7, Hoersaal ZIB
14195 Berlin

PROGRAMM:

10:00 - 11:00 **Frederik Witt**

Vector bundles, Clifford algebras and Spin groups
I will lay the algebraic fundament of gauge theory, which describes vector bundles in terms of group actions, and introduce Clifford algebras and SpinC groups.

11:15 - 12:15 **Frederik Witt**

SpinC-structures and their Dirac operator
This lecture is developed to the differential-geometric aspects of gauge theory. This involves SpinC-structures and a canonical differential operator associated with it, the Dirac operator.

13:00 - 14:00 **Damien Gayet**

Seilberg-Witten theory I
On a compact Riemannian 4-manifold, we introduce a pair of non-linear PDE's, the Seilberg-Witten equations. We show that the moduli space of solutions is smooth and compact. Finally, we define the Seilberg-Witten invariants in some easy cases.

14:15 - 15:15 **Damien Gayet**

Seilberg-Witten theory II

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

We discuss two applications of Seilberg-Witten theory. The first concerns the topology of 4-manifolds. The second will prove Thom's conjecture: smooth holomorphic curves in Cp2 are genus minimizing.

16:00 - 17:00 **Florian Gmeiner**

Physical background of Seilberg-Witten theory
We talk about the original physical motivation of Seilberg-Witten theory. In particular, we introduce super Yang-Mills theories and discuss their connection to string theory.

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