2nd Andrejewski Lecture/ SFB Colloquium

TIME:
10 Jan 2006, 14:00 - 19:00

LOCATION:
im AEI in Golm, Max-Planck-Campus
Am Mühlenberg 1, 14476 Golm
Central Building, room number Z-050

PROGRAM:

14:00 **Prof. Dr. Albrecht Klemm, University of Wisconsin, Madison**

Mirror symmetry and the topological A- and B-model
Mirror symmetry on CY manifolds exchanges the symplectic structure on M, actually a complexified Kähler structure, with the complex structure on a mirror dual CY manifold W. The deformation theory of each of these structures can be described by a topological string theory called the topological A- and the B-model respectively. These models are cohomological theories defined by nilpotent operators QA and QB. We will show that QA exists on every symplectic manifold while QB exists only on CY manifolds and certain generalizations thereof. The latter fact is related to the Tian & Todorov theorem on the unobstructedness of complex structure deformations on CY spaces and generalizations by Hitchin. We will then discuss properties of cohomological theories theories notably the descend- and topological recursion relations. The solution of the topological B-model using these recursion relations and some classical methods of complex structure deformation theory on W is worked out and related by mirror symmetry to the Gromov-Witten theory captured by the topological A-model on M.

16:00 **Prof. Dr. Jens Hoppe (Royal Institute of Technology, Stockholm), guest of the AEI**

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Aspects of Membrane Dynamics

17:30 **Dr. Simon Chiossi (HU)**

G2 structures on solvmanifolds

Conformally G2 manifolds are Riemannian manifolds with a G2 structure whose metric can be modified to a holonomy structure by a conformal change. There is an interesting construction of homogeneous conformally G2 structures on solvmanifolds built from underlying SU(3) structures. I will show how the corresponding non-homogeneous G2 metrics can be obtained also by evolving the SU(3) structure in time. (Possible reference: arXive math.DG/0510087)

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