SFB-Seminar

ZEIT:
21.6.2011, 16:00 Uhr - 19:00 Uhr

ORT:
Konrad-Zuse-Zentrum für Informationstechnik Berlin
Takustrasse 7
14195 Berlin-Dahlem

PROGRAMM:

16:00 - 17:00   **Prof. David Berenstein, PhD**

"Matrices, black holes and geometry"
I will first describe the origins of the gauge field theory/gravity
correspondence. I will describe why from a particular point of view
the dynamics is described by matrices and why from another point of
view the dynamics is described by curved spacetime geometry and its
dynamics. I will then describe the black hole information problem and
why the description in terms of matrices seems to solve this paradox.
I will spend the rest of the talk talking about how to think of the
dynamics of these matrices in a particular example, I will show some
simulations of various thermalization processes and I will explain why
the objects that can be built this way might behave like black holes.
I will also describe various ideas of how the information contained in
these matrices can be converted into well defined geometrical objects
and describe connections of these ideas to index theory.

17:00 - 17:30   Kaffeepause

17:30 - 18:30   **Dr. Cristina Manolache**

"The virtual push-forward property in Gromov-Witten theory"
I will dedicate the first part of the talk to a brief description of
Gromov-Witten invariants. These are numbers which record the
number of compact complex curves (i.e. Riemann surfaces) in a

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space X that have specified properties. For example they were successfully used to compute the number of degree d curves in a plane passing through 3d-1 given general points or the number of lines on the Calabi-Yau quintic threefold, etc. Gromov-Witten invariants are interesting from two different points of view: they carry a great deal of information about the geometry of X and they are also important in string theory, where the curves represent worldsheets of strings propagating in the target spacetime X.

In the second half of the talk I will try to answer the following question: Suppose we have two target spaces X and Y related by a simple geometric operation (for example X and Y are isomorphic on a dense set). Can we explicitly relate the Gromov-Witten invariants of X to the Gromov-Witten invariants of Y?