Leibniz Universität Hannover

Oberseminar Analysis und Theoretische Physik

Prof. Dr. Simon Scott

King's College London

Vertical genera and fibred bordism homology

A genus is a ring homomorphism from the (co)bordism ring, taking values usually in the real numbers. Well know examples are the signature of a 4k dimensional manifold or the A-hat genus, both of which appear in the Atiyah-Singer index formula. These fit into the theory of bordism homology. A interesting 'quantisation' of bordism theory leads to TQFT (topological quantum field theory), where the signature is naturally a logarithm on the bordism category. The purpose of this talk is to look into aspects of how bordism theory generalises to the context of families of manifolds, a bordism theory for fibrations. Homomorphisms then take values in cohomology and are called vertical genera; for example, the fibred A-hat class, appearing in the Atiyah-Singer index theorem for a family of pseudo differential operators, is such a vertical genus. We will discuss extensions and limitations of this fibred bordism homology theory, with some emphasis on aspects of interest to families of elliptic operators, and its quantisation to a 'fibred TQFT'.

Dienstag, 9.5.2017, 16:45 Uhr, Raum c311
Hauptgebäude der Leibniz Universität

Dazu laden herzlich ein:

Prof. Dr. Wolfram Bauer
Prof. Dr. Olaf Lechtenfeld
Prof. Dr. Christoph Walker
Prof. Dr. Joachim Escher
Prof. Dr. Elmar Schrohe
Prof. Dr. Emil Wiedemann