

MATHEMATICS SEMINAR
of the
UNIVERSITY OF LUXEMBOURG
in cooperation with the
LUXEMBOURG MATHEMATICAL SOCIETY

May 2008

6 May 2008, at 5 pm

Room 3.04 bs

Dorin Chepta
Romanian Academy of Sciences, Institute of Mathematics

Lagrangian cobordisms and finite type invariants

Abstract

Cobordisms between parametrized surfaces naturally determine closed 3-dimensional manifolds. Lagrangian cobordisms preserve under composition the property that this closed manifold is a homology sphere. This makes their category a suitable domain for a functorial extension of the universal finite-type invariant of 3-dimensional manifolds of Le, Murakami, and Ohtsuki. Such functors, which take values in spaces of Jacobi diagrams (of certain type), can be constructed in the case of closed surfaces and in the case of surfaces with one boundary component. The former is independent of the Drinfeld associator used, the latter admits a simple combinatorial description of the operation on Jacobi diagrams corresponding to the composition of cobordisms. Universality properties for finite-type invariants of cobordisms hold. Degree truncations of the internal part of the latter functor induce finite-dimensional representations of the Torelli group and of homology cylinders, which are further explored.

13 May 2008, at 5 pm

Room 3.04 bs

Alexander Zuevsky
National University of Ireland, Galway

Torus n -Point Functions for \mathbb{R} -graded Vertex Operator Superalgebras as an Origin of Twisted Elliptic Functions

Abstract

We consider n -point functions for free fermion conformal field theories/twisted modules of real graded vertex operator superalgebras on genus one and genus two (sewed from two genus one) Riemann surfaces.

In the rank two case we show how twisted elliptic functions arise as coefficients in recursive formulae. The modular properties of these orbifold n -point functions are given and we describe a generalization of Fay's trisecant identity for elliptic functions.

(Joint work with Geoffrey Mason (Santa Cruz) and Michael P. Tuite (Galway))

27 May 2008, at 5 pm

Room 3.04 bs

Lauri Hella
University of Tampere, Finland

Title and abstract: tba