Mathematisches Forschungsinstitut Oberwolfach

Algebraic Structures in Low-Dimensional Topology

Organised by
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ABSTRACT. Invariants of topological spaces of dimension three play a major role in many areas, in particular ...

Introduction by the Organisers

The workshop *Invariants of topological spaces of dimension three*, organised by Max Muster (München) and Bill E. Xample (New York) was well attended with over 30 participants with broad geographic representation from all continents. This workshop was a nice blend of researchers with various backgrounds ...

Workshop: Algebraic Structures in Low-Dimensional Topology

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Abstracts

Some very good formulas for the Alexander polynomial
DROR BAR-NATAN

I will describe some very good formulas for a (matrix plus scalar)-valued extension of the Alexander polynnomial to tangles, then say that everything extends to virtual tangles, then roughly to simply knotted balloons and hoops in 4D, then the target space extends to (free Lie algebras plus cyclic words), and the result is a universal finite type of the knotted objects in its domain. Taking a cue from the BF topological quantum field theory, everything should extend (with some modifications) to arbitrary codimension-2 knots in arbitrary dimension and in particular, to arbitrary 2-knots in 4D. But what is really going on is still a mystery.

My talk's handout, video, and further links are at `http://www.math.toronto.edu/~drorbn/Talks/Oberwolfach-1405/`.

Computing other invariants of topological spaces of dimension three
MAX MÜLLER, PETER MUSTERMANN

The computation of ...

Reporter: Vassily Olegovich Manturov