Oberwolfach Conference

May-05-08
9:17 AM

Olya Viro: Twisted acyclicity of the circle and link signatures.

Dimitrov: Polyak-Viro formulas for coefficients of the Conway polynomial.

\[ \Delta(\langle 2 \rangle) - \Delta(\langle 3 \rangle) = 2(0 \ 1) \]

\[ \Delta(\langle 3 \rangle) = 1 \]

(J. v. Mikhay)

\[ \Delta(K) = \sum \left( -\frac{1}{2} \right)^{n-\ell} \binom{n}{\ell} \text{ # of } K \text{ in } S \]

\[ \text{ # of } \text{ crossings} \text{ in } S \]

\( n \text{ is a subset of the set of crossings} \)

(This is the Jaeger formula)

Component: Get exactly one component when smoothing the rings in \( S \)

\[ \begin{array}{c}
\downarrow \text{ our knots are long knots} \\
\text{Jump Down: The first visit to the first-visited xing in } S \text{ is on the upper strand.}
\end{array} \]

Next comes a discussion of Gauss diagrams and arrow diagrams.

Lou Kauffman:

1. In a virtual knot there are "odd xings" - in the Gauss diagram, there is an odd number of entries between their entries.
   
   "Odd xing 1..."
2. "Flat virtuals"

Roger Fenn:

The Wada biquandle

\[ S(g,h) = (h^g, g_h) = (h g^2, h g^{-1} h) \quad g, h \in G \]

Question: What other biquandles can be defined within the free group?

Morton’s comment: The standard qandle -

\[ S(g,h) = (g^{-1} h g, g) \]

is an example.

**Conjecture** The general biquandle is a complete invariant of virtual knots.

Vassily Manturov:

Atom:

\[
\begin{array}{c}
\includegraphics[width=0.5\textwidth]{atom}\n\end{array}
\]

A surface with a quadrivalent graph on it, dividing it into cells, with a checkerboard colouring of those.

Heather Dye:

\[ \includegraphics[width=0.2\textwidth]{decorated-loops} \]

Decorated loops: collections of closed curves with relf.
Disjoint collections of loops, possibly with arrows.

Loops with an integral flow,

\[
\begin{pmatrix}
X & \rightarrow & \mathbb{R} \rightarrow & X
\end{pmatrix}
\]

**Alissa Crans:**

A quick summary of categorification:

\[
\neq \not\sim
\]

**Slogan:** Every equation is a lie!