

Monday-3 AKT on 140120: Finite type invariants to weight systems

January-19-14 7:13 PM

HW1 due! HW2 on web!

class photo on web!

on side board: The Kauffman bracket:

$$\langle \diagdown \diagup \rangle \rightarrow A \langle \diagup \rangle + A^{-1} \langle \diagdown \rangle \quad \langle \bigcirc^k \rangle \rightarrow d^k$$

0-smoothing 1-smoothing

$$J(K) := (-A^3)^{-w(K)} \frac{\langle K \rangle}{d} \Big/ A \rightarrow q^{-1/4}$$

Define f.t. invariants.

Examples of constants.

1. Linking numbers.
2. "The Jones Skein relation"

$$J(\nearrow \searrow) = -q^{3/4} (q^{-1/4} \langle \diagdown \rangle \langle \diagup \rangle + q^{1/4} \langle \bigcirc \rangle)$$

$$J(\searrow \nearrow) = -q^{-3/4} (q^{-1/4} \langle \bigcirc \rangle + q^{1/4} \langle \diagdown \rangle \langle \diagup \rangle)$$

$$\Rightarrow q^{-1} J(\nearrow \searrow) - q J(\searrow \nearrow) = (q^{1/2} - q^{-1/2}) \langle \diagdown \rangle \langle \diagup \rangle$$

\Rightarrow Jones is a f.t. series.

done
fine

3. HOMFLYPT:

$$aH(\nearrow \searrow) - a^{-1}H(\searrow \nearrow) = zH(\bigcirc \uparrow)$$

4. Conway $C(\nearrow \searrow) - C(\searrow \nearrow) = zC(\bigcirc \uparrow)$

.... functionals on chord diagrams.

.... FI & YT.