Sketch of a Paper

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Folder: SL2PO

Title. Implementing the Quantum SL2 Portfolio of Operations

Abstract. Building up from some new or lightly used theoretical tools, especially "solvable approximation" and "Gaussian differential operators", we give a clean and efficient computer implementation of the quantum sl2 portfolio of operations. Beyond the theoretical interest and the satisfaction that one obtains when complicated formulas come to life, become specific, and check, we explain (and implement and prove) why our results are valuable in knot theory.

> We mean business! Page nn contains a program which is a complete implementation of the quantum sl2 portfolio of operations. Page mm is a variant of that program tailored to efficiently compute the ``Rozansky-Overbay" invariants. Appendix AA is a tabulation of some of these invariants on knots with up to 10 crossings. Much more is at web:=(URL).

Section 1. Introduction.

In section 1.1 of the introduction we briefly and schematically recall how certain algebras lead to knot invariants, only so as to explain what exactly it is that we aim to implement and why. Section 1.2 of the introduction is the abstract of this paper, expanded from one paragraph to a few pages. Section 1.3 of the introduction is an introduction to the rest of the paper - a summary of what happens in it, and in what order.

a. A quick reminder of algebras and R-matrices.
b. An expansion of the abstract.
c. Plan of the paper.

Recycling.

our results include a sequence of knot invariants, the "Rozansky-Overbay Invariants". Abstractly this sequence of invariants is equivalent to the sequence of "coloured Jones polynomials", yet individually they are stronger, faster to compute, and more likely to carry useful topological information.