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ISBN: [9789811247422]; [9789811247439]; [9789811247446]

arXiv:2206.03056 (To Appear in AMS Contemporary Mathematics Series)

Topology of Vortex Reconnection

Authors: Louis H. Kauffman

Abstract: Knotted vortices such as those produced in water by Kleckner and Irvine tend to transform by reconnection to collections of unknotted and unlinked circles. The reconnection number $R(K)$ of an oriented knot of link K is the least number of reconnections (oriented re-smoothings) needed to unknot/unlink K .

Submitted 10 July, 2022; v1 submitted 7 June, 2022; originally announced June 2022.

Comments: 26 pages. 22 figures. LaTeX document

MSC Class: 57M25

arXiv:2203.09797 (To Appear in AMS Contemporary Mathematics Series)

ER=EPR, Entanglement Topology and Tensor Networks

Authors: Louis H. Kauffman

Abstract: This paper discusses $ER = EPR$, the hypothesis of Susskind and Maldacena that entangled black holes are connected by an Einstein-Rosen bridge, and that more generally, quantum entanglement is accompanied by topological connectivity. Given a background space and a quantum tensor network, we describe how to construct a new topological space, that welds the network and the background space together.

Submitted 23 March, 2022; v1 submitted 18 March, 2022; originally announced March 2022.

MSC Class: 81P40

From knot invariants to knot dynamics

Kauffman, Louis H.

Lecture Notes in Math., 2344

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J. Knot Theory Ramifications 33 (2024), no. 4, Paper No. 2450009, 35 pp.

The virtual spectrum of linkoids and open curves in 3-space

Barkataki, Kasturi; Kauffman, Louis H.; Panagiotou, Eleni
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3. Papers In Preparation

arXiv:2409.07499

Multi-Virtual Knot Theory.

Authors: Louis H Kauffman

arXiv:2406.08253

The Mock Alexander Polynomial for Knotoids and Linkoids.

Authors: Joanna A. Ellis-Monaghan, Neslihan G?g?m?c?c?c?, Louis H. Kauffman, Wout Moltmaker

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Mock Alexander Polynomials.

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Knots in RP^3 .

Authors: Louis H. Kauffman, Rama Mishra, Visakh Narayanan

Heather A. Dye, Louis H. Kauffman, Eiji Ogasa, Quantum Invariants of Links and 3-Manifolds with Boundary defined via Virtual Links: Calculation of some examples, arXiv:2203.12797

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A state sum for the total face color polynomial

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4. A Books in Preparation

``Virtual Knot Theory".

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