Poly-Time Knot Theory and Quantum Algebra

[Al] J. W. Alexander, *Topological invariants of knots and links,* Trans. Amer. Math. Soc. **30** (1928) 275–306.

[BN1] D. Bar-Natan, *On the Vassiliev Knot Invariants,* Topology **34** (1995) 423–472. (Reported at the prestigious Séminaire Bourbaki. See P. Vogel, *Invariants de Vassiliev des nœuds [d'après D. Bar-Natan, M. Kontsevich et V. A.Vassiliev],* Séminaire Bourbaki **761** (1993) 1–17 & Asterisque **216** (1993) 213–232).

[BN2] D. Bar-Natan, *Polynomial Invariants are Polynomial,* Mathematical Research Letters **2** (1995) 239–246.

[BN3] D. Bar-Natan, *Fast Khovanov Homology Computations,* Journal of Knot Theory and its Ramifications **16-3** (2007) 243–255.

[BN4] D. Bar-Natan, *Knot Theory, Algebra, and Higher Algebra,* NSERC Discovery grant proposal, 2012, ωεβ/d12.

[BN5] D. Bar-Natan, *Balloons and Hoops and their Universal Finite Type Invariant, BF Theory, and an Ultimate Alexander Invariant,* Acta Mathematica Vietnamica **40-2** (2015) 271–329, arXiv:1308.1721.

[BN6] D. Bar-Natan, *Finite Type Invariants of W-Knotted Objects IV: Some Computations,* in preparation, ωεβ/wko4, arXiv:1511.05624.

[BN7] D. Bar-Natan, *Polynomial Time Knot Polynomials,* conference talks in Qinhuangdao and Aarhus, July 2015. Handouts and video at ωεβ/q15 and ωεβ/a15.

[BN8] D. Bar-Natan, *The Brute and the Hidden Paradise,* conference talk at Les Diablerets, August 2016. Handout and video at ωεβ/ld16.

[BN9] D. Bar-Natan, *A Poly-Time Knot Polynomial Via Solvable Approximation,* talk at Indiana University, November 2016. Handout and video at ωεβ/ind.

[BN10] D. Bar-Natan, *On Elves and Invariants,* Conference talk at George Washington University, December 2016. Handout and video at ωεβ/gwu.

[BN11] D. Bar-Natan, *Polynomial Time Knot Polynomial,* research proposal for the 2017 Killam Fellowship, ωεβ/k17.

Discovery Grant Proposal References

[BN12] D. Bar-Natan, *The Dogma is Wrong,* Conference talk in Toulouse, May 2017. Handout and video at ωεβ/Toulouse.

[BND1] D. Bar-Natan and Z. Dancso, *Finite Type Invariants of W-Knotted Objects I: W-Knots and the Alexander Polynomial,* Alg. and Geom. Top. **16-2** (2016) 1063–1133, arXiv:1405.1956.

[BND2] D. Bar-Natan and Z. Dancso, *Finite Type Invariants of W-Knotted Objects II: Tangles and the Kashiwara-Vergne Problem,* Math. Ann. **367** (2017) 1517–1586, arXiv:1405.1955.

[BND3] D. Bar-Natan and Z. Dancso, *Finite Type Invariants of W-Knotted Objects III: Double Tree Construction,* in preparation, ωεβ/wko3.

[BNG] D. Bar-Natan and S. Garoufalidis, *On the Melvin-Morton-Rozansky Conjecture,* Inventiones Mathematicae **125** (1996) 103–133, ωεβ/mmr.

[BNS] D. Bar-Natan and S. Selmani, *Meta-Monoids, Meta-Bicrossed Products, and the Alexander Polynomial,* Journal of Knot Theory and Its Ramifications **22-10** (2013), ωεβ/BNS.

[BV1] D. Bar-Natan and R. van der Veen, *A Polynomial Time Knot Polynomial,* arXiv:1708.04853.

[BV2] D. Bar-Natan and R. van der Veen, *Poly-Time Knot Polynomials Via Solvable Approximations,* in preparation, ωεβ/BV2.

[ES] P. Etingof and O. Schiffman, *Lectures on Quantum Groups,* International Press, Boston, 1998.

[Fi] T. Fiedler, *Knot Polynomials from 1-Cocycles,* arXiv:1709.10332.

[FM] R. H. Fox and J. W. Milnor, *Singularities of 2-Spheres in 4-Space and Cobordism of Knots,* Osaka J. Math. **3** (1966) 257–267.

[GR] S. Garoufalidis and L. Rozansky, *The Loop Expansion of the Kontsevich Integral, the Null Move and S-Equivalence,* Topology **43** (2004) 1183–1210, arXiv:math.GT/0003187.

[HOMFLY] J. Hoste, A. Ocneanu, K. Millett, P. Freyd, W. B. R. Lickorish, and D. Yetter, *A new polynomial invariant of knots and links,* Bull. Amer. Math. Soc. **12** (1985) 239–246.

[Jo] V. F. R. Jones, *A polynomial invariant for knots via von Neumann algebras,* Bull. Amer. Math. Soc. **12** (1985) 103–111.

[MM] P. M. Melvin and H. R. Morton, *The coloured Jones function,* Comm. Math. Phys. **169** (1995) 501–520.

[Oh] T. Ohtsuki, *Quantum Invariants,* Series on Knots and Everything **29**, World Scientific 2002.

[Ov] A. Overbay, *Perturbative Expansion of the Colored Jones Polynomial,* University of North Carolina PhD thesis, ωεβ/Ov.

[Pr] J. H. Przytycki, *The First Coefficient of Homflypt and Kauffman Polynomials: Vertigan Proof of Polynomial Complexity using Dynamic Programming,* arXiv:1707.07733.

[PT] J. H. Przytycki and P. Traczyk, *Conway Algebras and Skein Equivalence of Links,* Proc. Amer. Math. Soc. **100** (1987) 744–748.

[Ro1] L. Rozansky, *A contribution of the trivial flat connection to the Jones polynomial and Witten's invariant of 3d manifolds, I,* Comm. Math. Phys. **175-2** (1996) 275–296, arXiv:hep-th/9401061.

[Ro2] L. Rozansky, *The Universal R-Matrix, Burau Representation and the Melvin-Morton Expansion of the Colored Jones Polynomial,* Adv. Math. **134-1** (1998) 1–31, arXiv:q-alg/9604005.

[Ro3] L. Rozansky, *A Universal U(1)-RCC Invariant of Links and Rationality Conjecture,* arXiv:math/0201139.