

Conference  
**Knot Theory and Its Applications to  
 Physics and Quantum Computing**  
 January 6-9, 2015 at UT Dallas




## Schedule

**Tuesday, January 6, 2015**

9:00-9:15AM	Bruce B. Novak Dean of NS&M	Official Opening of the Conference <i>Knot Theory and Its Application to Physics and Quantum Computing</i> (SLC 1.102)		
9:15-10:05AM	Anna Beliakova	Trace of the categorified quantum groups (SLC 1.102)		
10:05-10:25AM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
10:25-10:45AM	Dale Rolfsen	Generalized torsion in knot groups	Carl Hammarsten	Strip Diagram approach to combinatorial Heegaard Floer homology
10:55-11:15AM	Pawel Traczyk	Some remarks on Burau representation in dimension 4	Valentina Harizanov	Maximal vector spaces
11:25-11:45AM	Charles Frohman	The Localized Skein Algebra is Frobenius	Yilong Wang	Random Walk Invariants of String Links from R-Matrices
11:55-12:15PM	Kenneth A. Perko Jr.	The History of Knot Theory	Chuanwei Zhang	Search for Majorana Fermions in Spin-Orbit Coupled Superfluids and Superconductors
12:15-2:00PM	Lunch			
2:00-2:50PM	Mikhail Khovanov	Hopf algebras and their categorifications via planar diagrammatics (SLC 1.102)		
2:50-3:10PM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
3:10-3:30PM	Greg Friedman	Some knots whose complements are homotopy circles	Heather Dye	The span of the Jones polynomial of a virtual knot
3:40-4:00PM	Sam Nelson	Ribbon Biquandles and Virtual Knotted Surfaces	Semeon Arthamonov	Link Polynomial Calculus and AENV Conjecture
4:10-4:30PM	Piotr Suwara	Minimal generating sets of Reidemeister moves	Kate Petersen	Invariants of A-polynomials
4:40-5:00PM	Adam S. Sikora	About character varieties which are not spaces of characters	Alex Zupan	Bridge number and diagrams of surface links in the 4-sphere
5:00-5:20PM	Coffee break			
5:20-6:10PM	Cameron Gordon	Left-orderability, taut foliations, and cyclic branched covers (SLC 1.102)		
6:30-9:00PM	Reception in honor of legacy of Professor Istvan Ozsvath, Founders Building's Atrium (FO 2)			

- January 6 – 2 shuttles of 25 (each) leave the *Wingate by Wyndham Richardson* hotel at 8 : 25AM and 8 : 40AM to *UTD Conference Center*.
- January 6 – 2 shuttles of 25 (each) leave *UTD Conference Center* at 8 : 30PM and 9 : 00PM to the *Wingate by Wyndham Richardson* hotel.




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Wednesday, January 7, 2015

9:00-9:50AM	Peter Ozsvath	A concordance invariant from knot Floer homology (SLC 1.102)		
9:50-10:10AM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
10:10-10:30AM	Thang Le	On skein modules at roots of unity	Isabel Darcy	Tangle analysis of protein-DNA complexes
10:40-11:00AM	Anh T. Tran	Some conjectures about the colored Jones polynomial	Andreas Michaelides	Lower bounds for ropelength of links via higher linking numbers and other finite type invariants
11:10-11:30AM	Moshe Cohen	Reasons to love Chebyshev knots and billiard table diagrams	Teresa Przytycka	Network Based Approaches to Complex Diseases
11:40-12:00PM	Oliver Dasbach	Generalizing connected sums of knots and the colored Jones polynomial	Zbyszek Otwinowski	Single-stranded DNA topology in Eukaryotes
12:00-2:00PM	Lunch			
2:00-2:50PM	Louis H. Kauffman	Majorana Fermions, Topological Quantum Computing and the Dirac Equation (SLC 1.102)		
2:50-3:10PM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
3:10-3:30PM	J. Kania-Bartoszyńska	Topological Quantum Field Theory underlying quantum hyperbolic geometry	Eric Rowell	Representations of loop braid groups
3:40-4:00PM	Jim Hoste	Links with finite $n$ -quandles	Kouki Taniyama	Site-specific Gordian distances of spatial graphs
4:10-4:30PM	Jing Wang	A Khovanov Approach to Quiver Cohomology	Patrick Gilmer	Signatures and Nullities of real algebraic curves via plumbing diagrams
4:40-5:00PM	Radmila Sazdanovic	Torsion in Khovanov homology of semi-adequate links	Jennifer Chubb	Algorithmic complexity of orders of groups
5:00-5:20PM	Coffee break			
5:20-6:10PM	Jozef H. Przytycki	Forty years in Mathematics: personal perspective (SLC 1.102)		
6:30-10:00PM	Conference Banquet in honor of work of Professor J. Przytycki, Student Union, Galaxy Room			

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Thursday, January 8, 2015

9:00-9:50AM	Zhenghan Wang	Classification of (2+1)-TQFTs and its applications to physics and quantum computation (SLC 1.102)		
9:50-10:10AM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
10:10-10:30AM	Oleg Viro	Pictorial calculus of isometries	Michael Abel	An algebraic construction of colored HOMFLY-PT homology
10:40-11:00AM	Victoria Lebed	Twisted multi-distributivity and Lawrence representations of braid groups	Liang Chang	Low Dimensional Representations of the loop braid group $LB_3$
11:10-11:30AM	Seung Yeop Yang	Torsion of a finite quasigroup quandle is annihilated by its order	Hao Wu	A Khovanov-Rozansky-ish homology over $\mathbb{Q}[a]$
11:40-12:00PM	Krzysztof K. Putyra	Degenerate distributive complex is degenerate	Noboru Ito	Strong and weak (1, 3) homotopies on knot projections
12:00-2:00PM	Lunch			
2:00-2:50PM	Bob Coecke	From quantum foundations via natural language meaning via string diagrams (SLC 1.102)		
2:50-3:10PM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
3:10-3:30PM	Uwe Kaiser	On the structure of the Hoste-Przytycki Link homotopy Skein Modules of oriented 3-manifolds	Adam Lowrance	Alternating distances of knots
3:40-4:00PM	Masahico Saito	Group-quandle homology	Cody Armond	Heegaard diagrams corresponding to Turaev surfaces
4:10-4:30PM	Ying Hu	Left-orderability and cyclic branched coverings	Christine R. S. Lee	The Jones polynomial, 3-braids, and $L$ -space knots
4:40-5:00PM	Mustafa Hajij	Some properties of the tail of the colored Jones polynomial	Nathan Druivenga	AJ-conjecture for Cables of Some Alternating Knots
5:00-5:20PM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
5:20-5:40PM	Scott Carter	Heron's Formula from a 4-dimensional point of view	Nguyen D. Duong	Twisting bordered Khovanov homology
5:50-6:40PM	Ivan Dynnikov	Monotonic simplification and contact topology (SLC 1.102)		

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## Schedule

**Friday, January 9, 2015**

9:00-9:50AM	Peter Selinger	Efficient synthesis of quantum circuits by number-theoretic methods (SLC 1.102)		
9:50-10:10AM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
10:10-10:30AM	Razvan Gelca	Theta Functions and Knots	Mohamed Elhamdadi	Foundations of Topological quandles
10:40-11:00AM	Ilya Kofman	Geometrically and diagrammatically maximal knots	Hanna Makaruk	Quantum computing and second quantization
11:10-11:30AM	Abhijit Champanerkar	Spectra for volume and determinant density	Robert Owczarek	Quantum description of knotted and linked vortices in super fluid helium
11:40-12:00PM	Alexander Borland	$H$ -valued Knotoid Invariants	Natasha Jonoska	Genus Ranges of 4-regular Rigid Vertex Graphs and Their Chord Diagrams
12:00-2:00PM	Lunch			
2:00-2:50PM	Samuel Lomonaco	Quantum Knots and Topological Quantum Computing (SLC 1.102)		
2:50-3:10PM	Coffee break			
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
3:10-3:30PM	Maciej Mroczkowski	HOMFLYPT skein module of the lens spaces $L(p, 1)$	Rumen Dimitrov	Quasimaximal vector spaces
3:40-4:00PM	Marithania Silvero Casanova	On a conjecture by Kauffman on alternative and pseudoalternating links	Emily Herzig	Reversion, Rotation, and Exponentiation in Dimensions Five and Six
4:10-4:30PM	Xingshan Cui	Framed Cord Algebra Invariant of Knots in $S^1 \times S^2$	Noureen Khan	New Bounds on Virtual Bridge Number and Virtual Ascending Number
4:40-5:00PM	Michal Jablonowski	A singular braid monoid associated to knotted surfaces	Farzan Jafeh	Congruence Principle for Brouwer Degrees of Equivariant Maps between Solvable Group Representations Sphere
5:00-5:20PM	Coffee break			
5:20-6:10PM	Witold Rosicki	Cocycle invariants of codimension 2 embeddings of manifolds (SLC 1.102)		
	Session 1 (SLC 1.102)		Session 2 (FN 2.102)	
6:20-6:40PM	Semeon Arthamonov	Link Polynomial Calculus and AENV Conjecture		

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### *Additional Comments:*

- **Free Parking at "green" lots is also available for conference participants**