BOSTON UNIVERSITY GEOMETRY SEMINAR

NOTE: SPECIAL TIME!

NEW STRUCTURES IN QUANTUM INVARIANTS OF KNOTS AND LINKS

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January 18, 2012, 3:00 – 4:00pm
Math/Computer Science, Room B21
111 Cummington Street, Boston

Tea: 2:30pm in Room 144

Abstract: We would like to introduce some new development in the area of TQFT pioneered by Witten, Reshetikhin and Turaev. The colored HOMFLY polynomial is a quantum invariant of oriented links in S^3 associated with a collection of irreducible representations of each quantum group $U_q(sl_N)$ for each component of the link. In the first part of this talk, we will discuss so called, Labastida-Marino-Ooguri-Vafa conjecture. Its physics background is from string duality theory. The corresponding theory of colored Kauffman polynomial and orthogonal LMOV conjecture could also be developed in a similar fashion by using BMW algebras. We proved several cases of this new conjecture. This is a joint work with Lin Chen. Infinite product structure of Chern-Simons partition function will also be discussed, which is a joint work with Kefeng Liu and Pan Peng.

In the second part of this talk, we will discuss the recursion formulas and intrinsic relationships between various quantum group invariants. This is joint work with Nicolai Reshetikhin. These new structures may shed a new light on knot and link theory.

See `http://math.bu.edu/research/geom/seminar.html` or contact Takashi Kimura *kimura@math.bu.edu* for more information.