

Boğaziçi MATH COLLOQUIUM

On knotoids, braidoids and their applications

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Abstract:

Knotoids are a natural generalization of classical knot theory, allowing two free ends, and producing a diagrammatic and three dimensional interpretation for this freedom.

In this talk, we first construct new invariants for knotoids in relation with virtual knot theory. We study a graphical distance between the two endpoints of a knotoid (the height), and show that the affine index polynomial and the arrow polynomial provide lower bounds for the height of knotoids. Then we discuss possible applications of knotoids to proteins and show that knotoids indeed provide a finer entanglement-type analysis for proteins. Lastly, we introduce braidoids that are geometric objects analogous to classical braids, forming a “braided” theory for the theory of knotoids via geometric analogues of the Alexander and Markov theorems.

*The talk contains results from the joint works with Louis Kauffman, Sofia Lambropoulou and Andrzej Stasiak.

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Time: 13:30

Place: TB 130, Boğaziçi University

We would like to thank IMBM for their hospitality