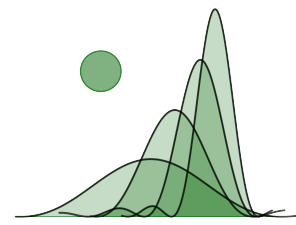




Colloquium Series

Department of Mathematics and Statistics



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Knot Polynomials of Ketupat: Exploring the topology of a traditional Indonesian food

Abstract: This study investigates the intersection of mathematics and cultural heritage through the application of knot theory to the analysis of ketupat, a traditional Indonesian rice dish. The research adopts a qualitative approach to explore the geometric structures of various ketupat varieties, leveraging advanced mathematical concepts from knot theory. The methodology integrates visual analysis, knot diagram creation, and mathematical computation to derive the Alexander polynomials for each type of ketupat. Utilizing computational tools like MATLAB, the study calculates complex polynomials that encapsulate the unique structural properties of each artifact. The research covers various ketupat varieties, including Ketupat Bata, Ketupat Nabi, Ketupat Telur, Ketupat Bantal, Ketupat Sumpil, Ketupat Coto, and Ketupat Bagea. Each variety is meticulously analyzed by constructing knot diagrams, followed by the computation of its corresponding Alexander polynomial.

This research offers a novel perspective on the intricate relationships between mathematics, culture, and traditional craftsmanship.

Keywords: Ketupat (an Indonesian rice dish), cultural knowledge, knot theory, and Alexander polynomials.

Wednesday, Sep. 25, 1:05 – 1:50 pm in 4-2-314