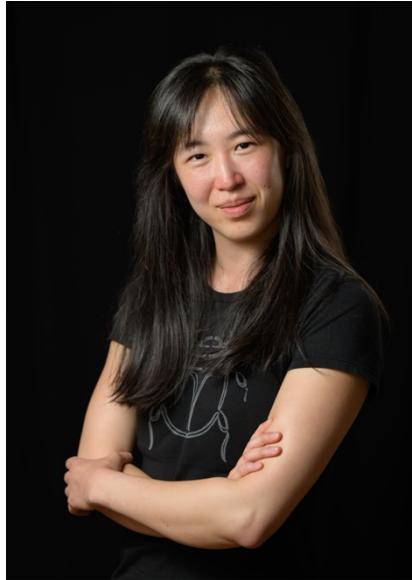


PHYSICAL MATH SEMINAR

Knitting on Helicoid Scaffolds



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(U Penn)

ABSTRACT:

We explore the relationship between a knitted yarn network and its “scaffold surface” to offer geometric insight into the interfaces between knit and purl stitches. The scaffold structure allows for a mean-field understanding of yarn mechanics, reducing the need to simulate direct yarn-to-yarn contacts by focusing on the geometry of the scaffold surface as an intermediary object. Furthermore, the crossings of yarns on the helicoid surface suggests an effective geometric model to predict the three-dimensional self-folding of knitted fabrics made only of the two traditional stitches, knit and purl.

Tuesday, April 7, 2026

2:30 PM – 3:30 PM

MIT Building 2, room 449