topological crochet

Shiying Dong

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Date Created: 03/16/2024
Dimensions: 36.0 x 36.0 x 36.0 cm
Materials Used: Wool, nylon, copper

Description

This piece showcases the power of topological crochet technique. It is in the same series as my exhibit pieces in Bridges 2023 and JMM 2024. In these, I use the same method to build a yarn sculpture that manifests the chiral icosahedral symmetry. This piece is a surface bounded by a link of six near-flat coils that intertwine each other symmetrically. The surface is nonorientable with genus 86. The construction starts from a foundation chain graph made from twelve (2,5) knots lining up like a dodecahedron, with saddle joints appropriately set up, using a method I discovered during topological crochet exploration. This method was taught in a workshop in Bridges 2024.

Statement

Creating with my hands connects me to the world. Through explorations of shape and form, I seek a deeper understanding of our surroundings. I find joy in the tactile sensation of yarn flowing through my fingers, and as if answering to the magic power of mathematics, strands become stitches, and stitches coalesce into structures in a fine way that honors their intrinsic nature.

Designer(s) Biography:

Shiying Dong is a pioneering fiber artist merging mathematics and art through abstract sculpture. With a background in theoretical physics and mathematics, Shiying developed Topological Crochet, a groundbreaking style translating algebraic topology concepts into yarn sculpting.

Shiying teaches workshops at the National Museum of Mathematics and has led sessions at the Bridges conferences. Her work has been showcased at Bridges
and the Joint Mathematical Meetings. Shiying shares her techniques on YouTube and is co-authoring "Unravelling Topological Crochet" with math artist Eve Torrence.

Expanding her creative horizons, Shiying explores laser cutting, earning the prestigious 2023 Einstein Mad Hat Award Grand Prize.

Figure Description: Saddle Monter, a nonorientable surface with genus 86, bounded by a link of six coils that intertwine each other symmetrically.