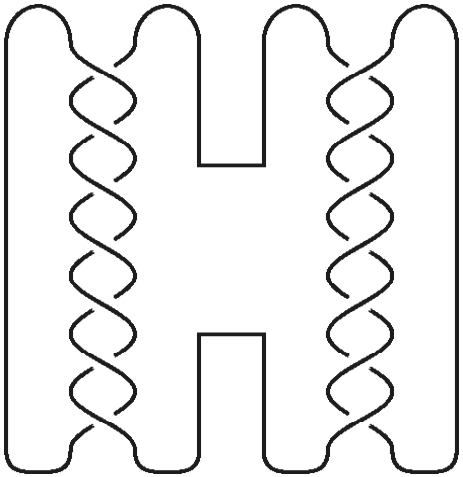
Berlin Mathematics Research Center MATH+

Berlin Mathematical School BMS

MATH+ Friday Colloquium

Friday, 8 May 2026 at 14:15

TU Berlin, Math Building, Straße des 17. Juni 136, Room MA 001 *Tea & Cookies starting at 13:30*



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Susan Hermiller

(University of Nebraska)

A tale of three unknotting conjectures

A knot is a circle embedded in 3-space; two knots are considered to be the same if we can deform one to the other, without breaking the circle or letting it pass through itself. Unknotting number is a fundamental measure of how complicated a knot is, measuring how far it is from the unknot via crossing changes. Unknotting number is a challenging invariant to compute; a vast array of tools have been applied to its calculation, and many conjectures have grown up around it.

In this talk, Hermiller will discuss three conjectures, each aimed at simplifying the task of computing unknotting numbers. She will describe how her resolution of one of these conjectures several years ago, in joint work with Mark Brittenham, led them recently to resolve another – the (non)additivity of unknotting number under connected sum.

Susan Hermiller is a Willa Cather Professor of Mathematics at the University of Nebraska. Her research focuses on the interplay between computational, combinatorial, and geometric properties in in group theory and low dimensional topology. After earning her Ph.D. at Cornell under the direction of Prof. Ken Brown, she held postdoctoral positions at the Mathematical Sciences Research Institute (now SLMath) and the University of Melbourne, and a faculty position at New Mexico State University, before moving to Nebraska. She is a Fellow of the American Mathematical Society.