

BERNOULLIS TAFELRUNDE

GRADUATE STUDENT SEMINAR

Monday, April 4 2022, 12:15-13:00

Hybrid seminar

Seminar room 05.001, Spiegelgasse 5 / Zoom

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Slice knots - knot theory in dimension 4

ABSTRACT

Knot theory is a subarea of low-dimensional topology - the study of smooth manifolds of dimension 4 or less. Classical knots are smooth embeddings of the (oriented) circle \mathbb{S}^1 into \mathbb{R}^3 (or into the 3-sphere), usually studied up to an equivalence relation called ambient isotopy. The concept of “sliceness” is a (natural) generalization in dimension 4 of the question whether certain knots are isotopic to the trivial knot (the so-called unknot). In the talk, we will define all the relevant terms and give examples of slice knots. Along the way, we will see some related important results from low-dimensional topology. For example, the study of slice knots is connected to the existence of “exotic” smooth structures on \mathbb{R}^4 .