

Oberseminar Topologie: 16.12.2024

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Title: The Dehn invariant for spherical scissors congruence as spectral Hopf algebra

Abstract: The Dehn invariant is known to many as the satisfying solution to Hilbert's 3rd problem: a three-dimensional polyhedron P can be cut into pieces and reassembled into a polyhedron Q if and only if Q and P have not only the same volume, but also the same Dehn invariant. Generalised versions of Hilbert's 3rd problem concern the so-called scissors congruence groups of euclidean, hyperbolic and spherical geometry in varying dimensions, and in these contexts one can define a generalised Dehn invariant. In the spherical case, Sah showed that the Dehn invariant makes the scissors congruence groups into a graded Hopf algebra. Zakharevich has shown that one can lift the scissors congruence group to a K-theory spectrum. In this talk I will discuss a lift of the Dehn invariant to the spectrum level, and we will see how it gives rise to a spectral version of Sah's Hopf algebra. This talk is based on joint work in progress with Inbar Klang, Cary Malkiewich, David Mehrle and Thor Wittich.