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Julia Semikina, Universität Münster

<u>Title</u>: K-theory of manifolds and cobordisms

<u>Abstract</u>: The generalized Hilbert's third problem asks about the invariants preserved under the scissors congruence operation: given a polytope P in R^n, one can cut P into a finite number of smaller polytopes and reassemble these to form Q. Kreck, Neumann and Ossa introduced and studied an analogous notion of cut and paste relation for manifolds called the SK-equivalence ("schneiden und kleben" is German for "cut and paste").
In this talk I will explain the construction that will allow us to speak about the "K-theory of manifolds" spectrum. The zeroth homotopy group of the constructed spectrum recovers the classical groups SK_n. I will show how to relate the spectrum to the algebraic K-theory of integers, and how this leads to the Euler characteristic and the Kervaire semicharacteristic when restricted to the lower homotopy groups. Further I will describe the connection of our spectrum with the cobordism category. (based on joint work with M. Merling and G. Raptis)