Oberseminar Topologie: 18.10.2023

Florian Kranhold, KTI

<u>Title</u>: A stable splitting of factorisation homology of generalised surfaces

<u>Abstract</u>: For a manifold W and an E_d-algebra A, the factorisation homology of W with coefficients in A admits an action by the diffeomorphism group of W and we consider its homotopy quotient W[A]. For $W_{\{g,1\}}=D^{\{2n\}}\#(\#^g S^n \times S^n)$, the collection of all $W_{\{g,1\}}[A]$ is a monoid by taking boundary-connected sums. We discuss its homological stability and describe its group-completion in terms of a tangential Thom spectrum and the iterated bar construction of A. We do so by identifying the above collection with an algebra over the generalised surface operad, establishing a splitting result for such algebras, and studying the free infinite loop space over a given (framed) E_d-algebra.