Oberseminar Topologie: 23.06.2021

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„On the classification of highly-connected manifolds“

Abstract:
A seminal problem in differential topology is the following: classify smooth, oriented, closed, (n-1)-connected (2n)-manifolds up to diffeomorphism. This is the "second easiest" classification problem after that of exotic spheres. In the first half of the talk, I will survey the history of and discuss the solution to this problem in high dimensions. In the second half, I will describe work in progress which generalizes this solution to high-dimensional manifolds which lie in the metastable range --- roughly those manifolds which are (dim/3)-connected. The relationship between the Adams spectral sequence and the J-homomorphism plays an important role in the proofs.

This talk represents joint work with Robert Burklund and Jeremy Hahn.