Oberseminar Topologie: 05.06.2024

Andrea Bianchi, MPIM Bonn

TITLE: String topology and graph cobordisms

ABSTRACT Let M be an oriented, closed manifold; the collection of homology groups H_*(map(X,M)), for varying topological space X, carries some additional operations, coming from functoriality of map(−,M), and from Poincare' duality of M. The most famous such operation is the Chas-Sullivan string product on H_*(map(S^1,M)). I will report on my work in progress, in which I define operations H_*(map(X,M);R)-->H_*(map(Y,M);R) using the homology of a suitable moduli space of graph cobordisms between X and Y. The setting is quite general: R is an E_infty-ring spectrum and M is a Poincare' duality space with an R-orientation. In particular, when we restrict to manifolds, all such operations are invariant under homotopy equivalences of manifolds.