ON ALGEBRAISATION OF LOW-DIMENSIONAL TOPOLOGY

ANNA BELIAKOVA

The categories of n-cobordisms are among the most studied objects in low dimensional topology. For n=2 we know that 2Cob is a monoidal category freely generated by its commutative Frobenius algebra object: the circle. This result also classifies TQFT functors on 2Cob. In this talk I will construct similar algebraic presentations and prove TQFT classification results for special categories of 3- and 4-cobordisms. Here the role of Frobenius algebra is taken by a Hopf algebra. The results are obtained in collaboration with Marco De Renzi, Ivelina Bobtcheva and Riccardo Piergallini.