

The rational classification of $(n-1)$ -connected $(4n-1)$ -manifolds $(n > 1)$

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I shall report on joint work with Johannes Nordström in which we identify a new invariant of the rational homotopy type of a space X , which we call the Bianchi-Massey tensor.

The Bianchi-Massey tensor is a linear map on the degree $(4n-1)$ rational cohomology of X taking values in a subspace of the 4-fold tensor product of the degree n cohomology of X .

We use the Bianchi-Massey tensor to show that there are many $(n-1)$ -connected $(4n-1)$ -manifolds which are not formal but which have no non-zero Massey products, and to present a classification of simply-connected 7-manifolds up to finite ambiguity.

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