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Automorphisms of reducible 3-manifolds

The symmetries of a smooth compact orientable 3-manifold M are encoded by its diffeomorphism group and associated classifying space. By the Kneser-Milnor and Geometrization theorems, every such M decomposes first into irreducible factors and then into geometric pieces, in an essentially unique way. We will discuss how understand the diffeomorphism group of M in terms of these decompositions, with applications to characteristic classes of 3-manifold bundles and mapping class groups. Part of this is joint work with Rachael Boyd and Jan Steinebrunner, and part with Bena Tshishiku.