

First order rigidity of manifold homeomorphism groups

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Two groups are elementarily equivalent if they have the same sets of true first order group theoretic sentences. We prove that if the homeomorphism groups of two compact connected manifolds are elementarily equivalent, then the manifolds are homeomorphic. This generalizes Whittaker's theorem on isomorphic homeomorphism groups (1963) without relying on it. We also establish the analogous result for volume-preserving subgroups. Joint work with Thomas Koberda (UVa) and Javier de la Nuez-Gonzalez (KIAS).

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