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On the topological structure of compact 5-manifolds

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Abstract: We classify the genus one compact (PL) 5-manifolds and prove some results about closed 5-manifolds with free fundamental group. In particular, let M be a closed connected orientable smooth 5-manifold with free fundamental group. Then we prove that the number of distinct smooth 5-manifolds homotopy equivalent to M equals the 2-nd Betti number (mod 2) of M .

Keywords: colored graph, crystallization, genus, manifold, surgery, s-cobordism, normal invariants, homotopy type

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