INVARIANCE OF PONTRJAGIN CLASSES OF BOTT MANIFOLDS

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A *Bott manifold* is a closed smooth manifold obtained as the total space of an iterated $\mathbb{C}P^1$-bundles starting with a point, where each $\mathbb{C}P^1$-bundle is the projectivization of the Whitney sum of two complex line bundles. We show that every cohomology ring isomorphism between cohomology rings of two Bott manifolds preserves their Pontrjagin classes. As a corollary, for a given ring R, there are at most finitely many Bott manifolds whose cohomology ring is isomorphic to R. This research is motivated by one of the most interesting problems in toric topology, called the *cohomological rigidity problem* for Bott manifolds (more generally, toric manifolds), which asks whether the cohomology ring of a Bott manifold determines the topological type of the manifold.

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