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Classification of smooth manifold structures on products of $\mathbb{CP}(n)$ with a k -dimensional disk

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This project is concerned with the problem of classifying different smooth structures admitted by a smooth manifold up to homotopy. This classification is made possible by the tools of surgery theory and is summarized in the notion of the smooth structure set $\mathcal{S}^{DIFF}(X)$ of a smooth manifold X . We focus on cases when X is the product of the complex projective space with a k -dimensional disk. As a result, we obtain a full classification in dimensions $n, k \leq 6$. By comparing these results to known computations of the topological structure set $\mathcal{S}^{TOP}(\mathbb{CP}^n \times D^k)$ we obtain examples of “exotic” topological manifolds, that is manifolds with no admissible smooth structure.

Pracovisko fakulty (katedra)/ Department of Faculty

Katedra algebry a geometrie

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Authors: KALUZNY, Samuel; MACKO, Tibor**Session Classification:** Poster session + káva: prezentácie študentov Matematika**Track Classification:** Poster session + káva: prezentácie študentov: Poster session + káva: prezentácie študentov Matematika