Generalized configuration space and its homotopy groups

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Let M be a subset of vector space or projective space. The authors define the generalized configuration space of M which is formed by n-tuples of elements of M where any k elements of each n-tuple are linearly independent. The generalized configuration space gives a generalization of the classical configuration space of M by $W_{k,n}(M)$. The authors are mainly interested in the calculation about the homotopy groups of generalized configuration spaces of $\mathbb{R}P^m$ for some special cases, and the connections between the homotopy groups of generalized configuration spaces of S^m and the homotopy groups of Stiefel manifolds. It is also proved that the higher homotopy groups of generalized configuration spaces $W_{k,n}(S^m)$ and $W_{k,n}(\mathbb{R}P^m)$ are isomorphic. This is a joint work with Xuezhi Zhao.

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