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Moduli spaces of 2-stage Postnikov systems

It is a classic fact that any graded group (abelian above dimension 1) can be realized as the homotopy groups of a space. However, the question becomes difficult if one includes the data of primary homotopy operations, known as a Π-algebra. When a Π-algebra is realizable, we would also like to classify all homotopy types that realize it.

Using an obstruction theory of Blanc-Dwyer-Goerss, we will describe the moduli space of realizations of certain 2-stage Π-algebras. This is better than a classification: The moduli space provides information about realizations as well as their higher automorphisms.