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Мини курс: Lectures on RX: On the forgotten definition of the homology of a space via the configuration space of charged particles

Abstract

The Dold-Thom Theorem (1958) states that integral homology of a space X is isomorphic to the homotopy groups of its infinite symmetric product. The monograph "Algebraic Topology from a Homotopical Viewpoint" (2002) of Aguilar, Gitler and Prieto develops homology theory from this point of view. But infinite symmetric products have a technical drawback which makes proofs difficult and clumsy: They convert cofibrations to quasi-fibrations only.

This can be cured by a generalized approach of McCord (1969) who defined a space RX for any abelian monoid R which can be interpreted as the configuration space of R-charged particles in X. The simplest case R = $\mathbb{N}$ gives the symmetric product and for R an abelian group, the homotopy groups of RX are isomorphic to the singular homology of X with R-coefficients. Moreover, the functor RX turns cofibrations to fibrations (for R an abelian group) and allows very quick proofs of many standard constructions and results in algebraic topology. We recall this miraculous theory of McCord and give also new applications and new proofs in more advanced situations.

Понедељак 9.12.2024, *Математички институт САНУ*, Сала 301ф

9.30-10.30 Лекција I
10.45-11.45 Лекција II

Уторак 10.12.2024, *Математички институт САНУ*, Сала 301ф

9.30-10.30 Лекција III
10.45-11.45 Лекција IV

Четвртак 12.12.2024, *Математички институт САНУ*, Сала 301ф

9.30-10.30 Лекција V