

Homotopy algebras through examples

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Abstract

A_∞ -algebras, L_∞ -algebras, E_∞ -algebras became ubiquitous in mathematics. These are examples of *homotopy algebras*. In my talk I will try to give a popular introduction to this topic. First, I will describe the general idea with the example of A_∞ -algebras. Second, I will explain the notion of transfer of a homotopy algebra. Next, I will introduce L_∞ algebras and recall Kontsevich's formality theorem. Finally, I will show that Kontsevich's formality quasi-isomorphism can be obtained via transfer of a natural homotopy algebra structure on the pair "associative algebra A and its Hochschild cochain complex $C^\bullet(A)$ ".