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Urtzi Buijs* (ubuijs@ub.edu), Departament d'Àlgebra i Geometria, Universitat de Barcelona, Gran via de les Corts Catalanes 585, 08007, Barcelona, Spain. *L-infinity models of mapping spaces.*

The strength of rational homotopy theory relies on the fact that the rational homotopy category can be completely encoded by means of algebraic categories.

In particular, there are equivalences between the homotopy categories of rational nilpotent spaces of finite type and of commutative differential graded algebras on the one hand, and of rational 1-connected spaces and differential graded connected Lie algebras on the other hand.

The version up to homotopy of the latter algebraic structure corresponds to the the concept of L-infinity algebra, which was first introduced in the context of deformation theory and highly used since then in quite different geometrical settings.

In this talk we describe explicitly L-infinity algebras modeling components of the mapping space in terms of different models of the source and the target.

We show how these up to homotopy structures allow us to improve considerably some upper bounds of the Whitehead-length of mapping spaces. (Received February 09, 2011)