

Curvature and rational homotopy

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Abstract

The Sullivan model gives a perfect algebrisation of the rational homotopy type of nilpotent simplicial sets, with finite Betti numbers, as commutative differential graded algebras (cdga's). The extension of this algebraic process to the non nilpotent case requires a replacement of cdga's by a rational version of vectorial PL-bundles with cdga's as fibers. The differential D of such objects admits a component D_1 which acts as a linear connection and we call *curvature* its iteration $(D_1)^2$.

In a join work with *Stephen Halperin*, we show how this curvature measures the existence of an action of the fundamental group $\pi_1(X)$ on the minimal model of the covering space \tilde{X} .