On the Formulation of Homotopical Mechanics FIDELE TWAGI-
RAYEZU, Texas State University — Let M_G be a path-connected and simply con-
nected space over a gravitational field G. Let α_i be a free-fall path on M_G for
$i \in Z$(set of integers). The Hamiltonian H for α_i obeys the homotopy theory. We
showed that the Euler-Lagrange's equations for α_i can be expressed in terms of a
homotopy map between the kinetic energy u(t) and potential energy v(t) for α_i, here
t$\in$ [0,1].

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