Contribution ID: **1024** Type: **Oral (Non-Student) / orale (non-étudiant)**

Generating Einstein gravity, cosmological constant and Higgs mass from restricted Weyl invariance

Tuesday 14 June 2016 13:45 (15 minutes)

Recently, it has been pointed out that dimensionless actions in four dimensional curved spacetime possess a symmetry which goes beyond scale invariance but is smaller than full Weyl invariance. This symmetry was dubbed *restricted Weyl invariance*. We show that starting with a restricted Weyl invariant action that includes pure R^2 gravity and a Higgs sector with no explicit mass, one can generate the Einstein-Hilbert action with cosmological constant and a Higgs mass. The model also contains an extra massless scalar field which couples to the Higgs field (and gravity). If the coupling of this extra scalar field to the Higgs field is negligibly small, this fixes the coefficient of the nonminimal coupling $R\Phi^2$ between the Higgs field and gravity.

Author: Prof. EDERY, Ariel (Bishop's University)

Co-author: Dr NAKAYAMA, Yu (Caltech)

Presenter: Prof. EDERY, Ariel (Bishop's University)

Session Classification: T2-7 Gravity, Astrophysics and Cosmology (DTP) / Gravité, astrophysique et cosmologie (DPT)

Track Classification: Theoretical Physics / Physique théorique (DTP-DPT)