Area Seminar

Title	Dynamical generation of the Higgs potential and CW inflation
Date and Time	09/12/2013 14:30:00
Speaker	Professor Eung Jin Korea Institute of Advanced Study, Seoul, Korea
Area	Theoretical Physics
Venue	Room No. 469
Abstract	Assuming the full scalar potential vanishing at the vacuum instability scale, a successful radiative generation of the Higgs potential is achieved in the framework of a generalized B-L gauge symmetry with two free parameters, the B-L gauge coupling and the right-handed neutrino Yukawa coupling. The B-L gauge symmetry is broken spontaneously by the Coleman-Weinberg mechanism while the scale symmetry breakdown induces electroweak symmetry breaking through the radiative generation of appropriate scalar quartic couplings. Then, we revisit a small field Coleman-Weinberg inflation in this scheme. The observed amplitude of perturbations needs an extremely small quartic coupling of the inflaton which is claimed to be a signature of radiative origin. However, the spectral index obtained in a standard cosmological scenario turns out to be outside the 2 sigma region of the Planck data. When a non-standard cosmological framework which modifies the evolution of the Hubble parameter is invoked, the spectral index can be made consistent with Planck data within 1 sigma.