Area Seminar

Title	Cosmological Magnetic Field Generation in Higgs-Inflation Model
Date and Time	18/05/2012 16:00:00
Speaker	Moumita Das Physical Research Laboratory, Ahmedabad
Area	Theoretical Physics
Venue	Room No. 469
Abstract	We study the generation of magnetic field in Higgs-inflation models where the Standard Model Higgs boson has a large coupling to the Ricci scalar. We couple the Higgs field to the Electromagnetic fields via a non-renormalizable dimension six operator suppressed by the Planck scale in the Jordan frame. We show that by choosing the Higgs coupling ?(MZ)=0.132 (which corresponds to mh=126GeV in keeping with the recent measurements by ATLAS and CMS) and curvature coupling ?(MZ)=103 we can generate comoving magnetic fields of 10?7 Gauss at present and comoving coherence length of 100kpc. The problem of large back-reaction which is generic in the usual inflation models of magneto-genesis is avoided as the back-reaction is suppressed by the large Higgs-curvature coupling.