

[Room/Salle : Kildonan]

Chair: R. MacKenzie, U.Montreal

TU-A9-1 10h00

BOB HOLDOM, University of Toronto

Ghostly Tales

I discuss fields with negative kinetic energy terms in the context of various cosmological puzzles.

TU-A9-2 10h30

TAEJIN LEE, University of British Columbia

Free Field Representation of Rolling Tachyon

We apply the fermionization to the rolling tachyon system, which describes a fate of the unstable D-brane. The boundary state for the unstable D-brane is explicitly constructed and its exact evolution in time is obtained. The free fermion representation of the rolling tachyon system is found useful to understand how the openstring tachyon potential deforms the perturbative basis of closed string.

TU-A9-3 11h00

AARON BERNDSEN, CHEP, McGill University

*Aspects of Brane-Gas Cosmology**

Brane-Gas Cosmology (BGC) is an approach to pre-Big Bang cosmology that attempts to reconcile several problems with standard cosmology through a setup based on string theory. The original idea, qualitatively laid out by Brandenberger and Vafa, has been employed to avoid the initial singularity, to explain why only three of nine spatial dimensions predicted by string theory grow large, and to explore the effects of branes and topology on the Universe, to mention only a few. We review these results and explore further aspects of the BGC setup, such as the stability of the dilaton, the dependence of string interaction rates on the number of dimensions, and the scale of the hierarchy.

* This work is being supported by McGill, NSERC and was in collaboration with J. Cline, CHEP, McGill University.

TU-A9-4 11h30

THOMAS GREGOIRE, CERN

Little Higgs Models And Electroweak Precision Measurements

Little Higgs models stabilize the weak scale with weakly coupled new physics at the TeV scale. In contrast with supersymmetry, quadratic divergences to the Higgs mass are cancel by "partners" of the same statistic. In this talk I will discuss the general mechanism at work in little Higgs models, and discuss their general features. If time permit, I will then review the different kinds of little Higgs models and their consequences for electroweak precision measurements.

ORAL SESSION ABSTRACTS

TU-A9-5

12h00

MAXIM POSPELOV, University of Victoria

Search For Dark Matter In $B \rightarrow S$ Transition With Missing Energy

We show that the decay of B mesons to K (K^*) and missing energy in the final state can be an efficient probe of dark matter in the mass range $0 < m_S < 2.4$ GeV where the decay into a pair of dark matter particles S is kinematically allowed. We analyze a model with the scalar dark matter coupled to the Standard Model sector via the Higgs boson to show that the width of the Higgs penguin-mediated decay mode $B \rightarrow KSS$ may exceed the decay width in the Standard Model channel, $B \rightarrow K\nu\bar{\nu}$, by up to two orders of magnitude if the required cosmological abundance of scalars is achieved through the annihilation at the freeze-out. Existing data from B physics experiments exclude scalar dark matter with $m_S < 430$ MeV and 510 MeV $< m_S < 1.1$ GeV. Expected data from B factories will probe the range of dark matter masses up to 2 GeV.

* In collaboration with C. Bird, P. Jackson and R. Kowalewski, University of Victoria.

12h30

Session Ends / Fin de la session