



## Séminaire de Physique Théorique

Jeudi 13 Novembre 2008

à 11h00 à l'auditorium

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(LAPTH)

### Cosmological constraints on the minimal universal extra-dimension model

**Résumé :** I will review the framework of universal extra dimensions (UED) and its notable phenomenological features. In UED models, all of the standard model fields are assumed to propagate in flat, compactified extra dimensions, and by virtue of Kaluza-Klein (KK) parity the lightest KK particle (LKP) is stable and thus a viable dark matter candidate. In particular, I will discuss the thermal relic abundance of the LKP dark matter in detail. I show that in the minimal UED model resonance effects by second KK particles in (co-)annihilation processes reduce the LKP abundance by about 30%, and that the cosmologically allowed compactification scale  $1/R$  is found to be  $600 \text{ GeV} < 1/R < 1400 \text{ GeV}$ .