Contribution ID: **87** Type: **not specified**

Unparticle Dark Matter

Monday 17 December 2007 12:10 (20 minutes)

Once a parity is introduced in unparticle physics, under which unparticle provided in a hidden conformal sector is odd while all Standard Model particles are even, unparticle can be a suitable candidate for the cold dark matter (CDM) in the present universe through its coupling to the Standard Model Higgs doublet. We find that for Higgs boson mass in the range, 114.4 GeV < m_h < 250 GeV, the relic abundance of unparticle with mass 50 GeV < m_U < 80 GeV can be consistent with the currently observed CDM density. In this scenario, Higgs boson with mass m_h < 160 GeV dominantly decays into a pair of unparticles and such an invisible Higgs boson may be discovered in future collider experiments.
Ref.: e-Print: arXiv:0711.1506 [hep-ph]

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Session Classification: Plenary Talks