NWS10-2010-000124

Abstract for an Invited Paper
for the NWS10 Meeting of
the American Physical Society

A Common Origin for Baryonic Visible Matter and Antibaryonic Dark Matter

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We present a novel mechanism, hylogenesis, for generating both the baryon and dark matter densities of the Universe. A new Dirac fermion X carrying a conserved baryon number charge couples to the Standard Model quarks as well as a GeV-scale hidden sector. CP-violating decays of X, produced non-thermally in low-temperature reheating, sequester antibaryon number in the hidden sector, thereby leaving a baryon excess in the visible sector. The antibaryonic hidden states are stable dark matter. A spectacular signature of this mechanism is the baryon-destroying inelastic scattering of dark matter that can annihilate baryons at appreciable rates relevant for nucleon decay searches.