

“Quintessence and D3-brane/anti-brane universe”

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We out-line a plausible scenario leading to a vacuum created pair of D3-brane/anti-brane by a two form in a U(1) gauge theory on a D4-brane world-volume. In particular, we consider the gauge theory on a D4-brane in presence of a background (open string) black hole metric and obtained an effective torsion curvature description in a second order formalism. The scenario is explored to address certain aspects of a quintessence which is believed to be a candidate for the source of dark energy in our universe. It is argued that a quintessence dynamics may be viewed through an axionic scalar on an anti D3-brane world- volume which in turn is paired with our D3-brane universe at a distance. The presence of an extra fifth transverse dimension between the four dimensional brane and anti-brane universes may provide a clue behind an accelerating universe observed in cosmology.

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