

Philip Lu "Regurgitated Dark Matter"

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We present an alternative production mechanism to thermal freeze-out for WIMP dark matter. In this model, GeV mass particles are shepherded into false vacuum pockets during a first order phase transition and trapped by a large mass gap. They form compact remnants that collapse into light primordial black holes, which subsequently regurgitates the initial constituent particles through Hawking evaporation. The WIMP mass density is nearly independent of the cross section and can constitute all of dark matter over a wide swath of parameter space. The dark matter particles in this unique model are responsible for creating the PBHs which later re-emit them.

Session Classification: Short talks