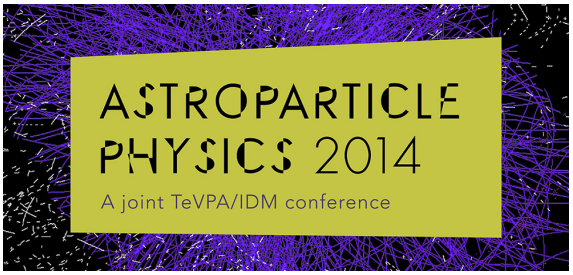

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Hypercharged Dark Matter and Direct Detection as a Probe of Reheating

Friday 27 June 2014 14:50 (20 minutes)

Abstract: I will discuss the implications of hypercharged dark matter, which is a generic possibility which leads to very large scattering cross sections at direct detection experiments. In fact, current and planned experiments are probing masses for such particles up to an amazing $10^8 - 10^{10}$ GeV. If a detection were made, then the scattering rate would reveal the dark matter mass, and in turn an indirect measurement of the reheating temperature of the universe through its impact on the non-thermal dark matter relic abundance. Evidence that hypercharged dark matter were responsible for a signal could be obtained by comparing spectra at several experiments, without requiring any assumptions about the dark matter halo velocity distribution.

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