



Contribution ID: 79

Type: **Poster**

Cosmic Phase Transition- a hint of Cold Dark Matter in the Standard model

Tuesday, 29 September 2015 16:30 (2 hours)

Witten¹ and others² have argued that “small” supercooling leading to “little inflation” was the reality at the primordial era of cosmic phase transition from quarks to hadrons. This will necessarily shift the direction of the phase transition from a “cross over” to a first order phase transition.

Strange quark nuggets (SQM) with baryon number of $\sim 10^{44}$ as relics of this phase transition will survive² the entire cosmic time scale upto now. The presentation will demonstrate the SQM's can be the most plausible candidate of cold dark matter discovered around 1996. The “MACHO” observations and the recent observations of strangelets of Bose Institute (Kolkata) seem to corroborate the just mentioned concept.

This is quite natural within the ambit of the standard model; exotica like axioms even WIMPS, not observed, do not have to be invoked.

[1] E. Witten, Phys Rev D 30 272 (1984);
E. Witten, Private Communication (2014)

[2] T. Boeckel, J. Schaffner- Bielch, Phys Rev Lett 105 041301 (2010);
B. Sinha, Int JMPA 29 1432004(2014)

On behalf of collaboration:

NONE

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Session Classification: Poster Session

Track Classification: Quark Matter in Astrophysics