



Roaming Baryons: in and around Galaxies

Friday, 22 May 2015 09:40 (15 minutes)

Baryons are missing at all scales in the Universe, from the largest scale structures down to galaxies. Hydrodynamical simulations in a Lambda-CDM framework predict that the vast majority of such baryons are roaming in-and-out of galaxies, hiding in a metal-enriched warm-hot phase, at temperatures of $1e5$ - $1e7$ K (and perhaps even lower).

The chemical and physical state of these baryons is regulated by the continuous interaction between virtualized structures and the surrounding circum-galactic (CGM) and intergalactic (IGM) medium.

Here, we first briefly review the current observational evidence for the roaming baryons, established from a privileged laboratory, our own Milky Way, and then present our new results from two sizable, S/N-limited samples of Galactic and extragalactic targets, that powerfully constrain and characterize the luke-warm phase of such baryons in the surroundings of the Milky Way.

I will conclude by highlighting the most promising strategies for future deeper studies of the missing baryons, with current and future instrumentation.

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Session Classification: Astrofisica delle Strutture Cosmiche Barioniche

Track Classification: Astrofisica delle Strutture Cosmiche Barioniche