



Physics Department seminar
DIPARTIMENTO DI FISICA, VIA CELORIA 16, MILANO

Aula Consiglio VIRTUALE
<https://zoom.us/my/aula.consiglio>

3 Dicembre 2020 – 14:00

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**The baryon density of the Universe
from an improved rate of deuterium burning**

Light elements were produced in the first few minutes of the Universe through a sequence of nuclear reactions known as Big Bang nucleosynthesis (BBN).

Although astronomical observations of primordial deuterium abundance have reached percent accuracy, theoretical predictions based on BBN are hampered by large uncertainties on the cross-section of the deuterium burning $D(p,\gamma)^3\text{He}$ reaction.

I will report on a new measurement of the $D(p,\gamma)^3\text{He}$ cross section performed by the LUNA collaboration to an unprecedented precision of better than 3%.

This result settles the most uncertain nuclear physics input to BBN calculations and substantially improves the reliability of using primordial abundances as probes of the physics of the early Universe.

