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# Galactic antideuterons

- V. De Romeri, F. Donato, D. Maurin, **Lorenzo Stefanuto**, A. Tolino; [PRD112\(2025\)023003](#); ArXiv: [2505.04692](#)
- M. Di Mauro, F. Donato, N. Fornengo, J. Koechler, D. Maurin, **LS**; ArXiv: coming soon
- **LS**, M. Di Mauro, F. Donato, N. Fornengo, J. Koechler, D. Maurin; ArXiv: coming soon

**UNDARK**

09/03/2026

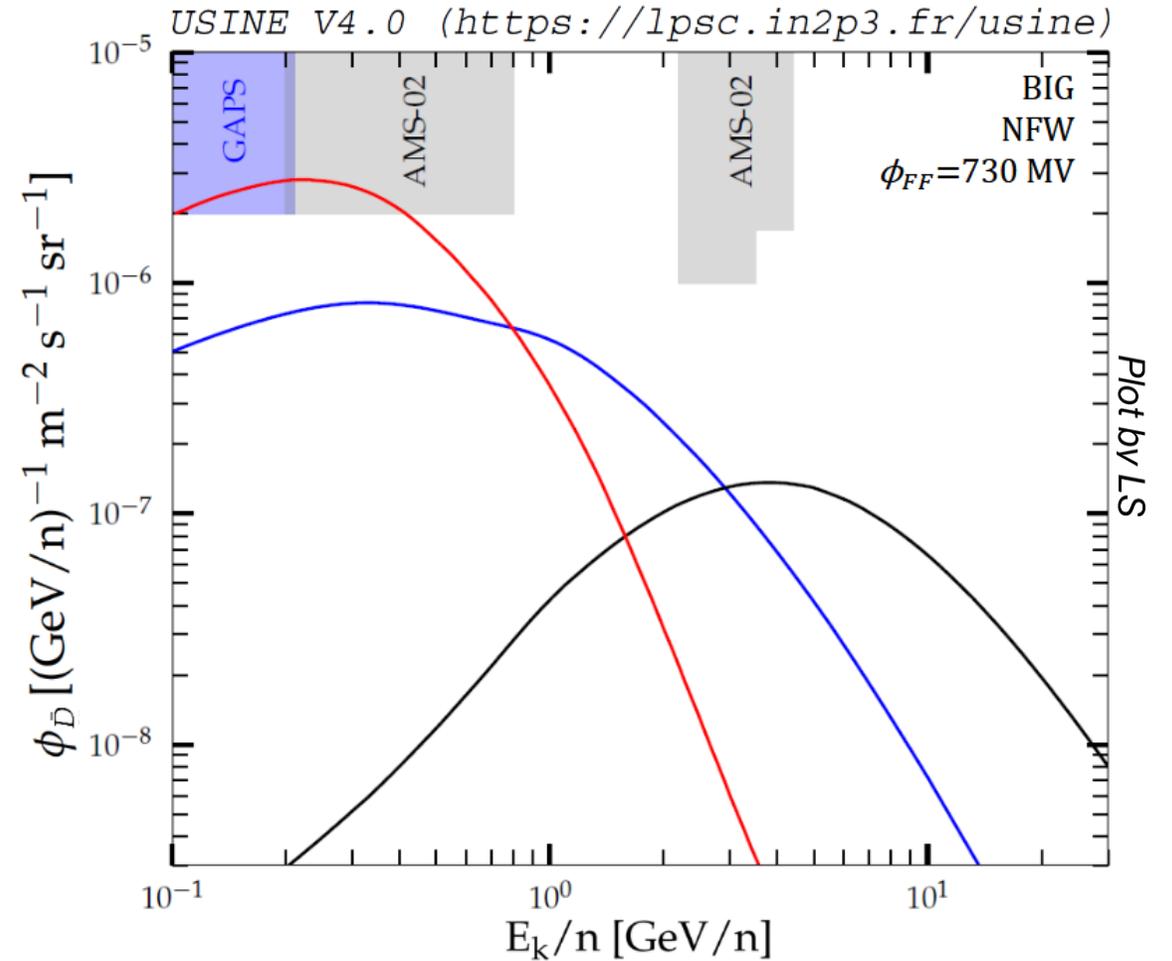
# Why galactic antideuterons

Relatively small background expected at energies  $\lesssim$  GeV

*Donato et al. 2000 ; Barrau et al. 2002*



Galactic  $\bar{D}$   $\rightarrow$  one of the **cleanest channels** for **indirect DM detection**

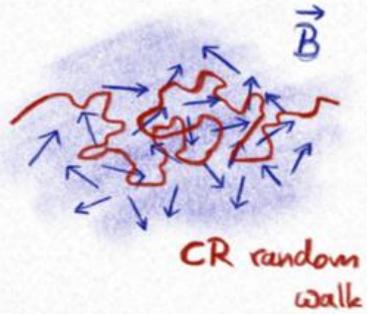


— Secondary  $\bar{D}$     —  $\bar{D}$  from PBH  
 —  $\bar{D}$  from WIMP,  $m_{DM} = 10$  GeV

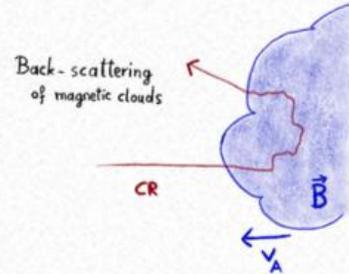
Maximal fluxes allowed by AMS-02  $\bar{p}$  data <sup>2</sup>

# CR propagation

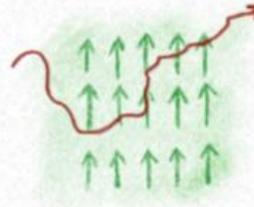
## DIFFUSION



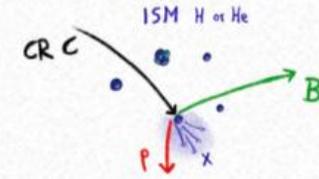
## REACCELERATION



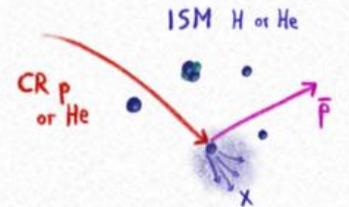
## CONVECTION



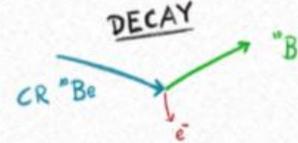
## FRAGMENTATION



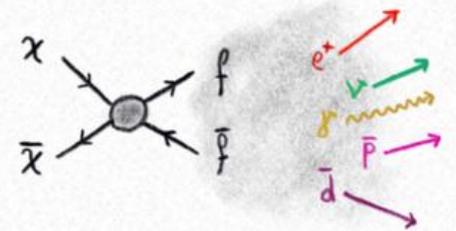
## ANTIPROTONS



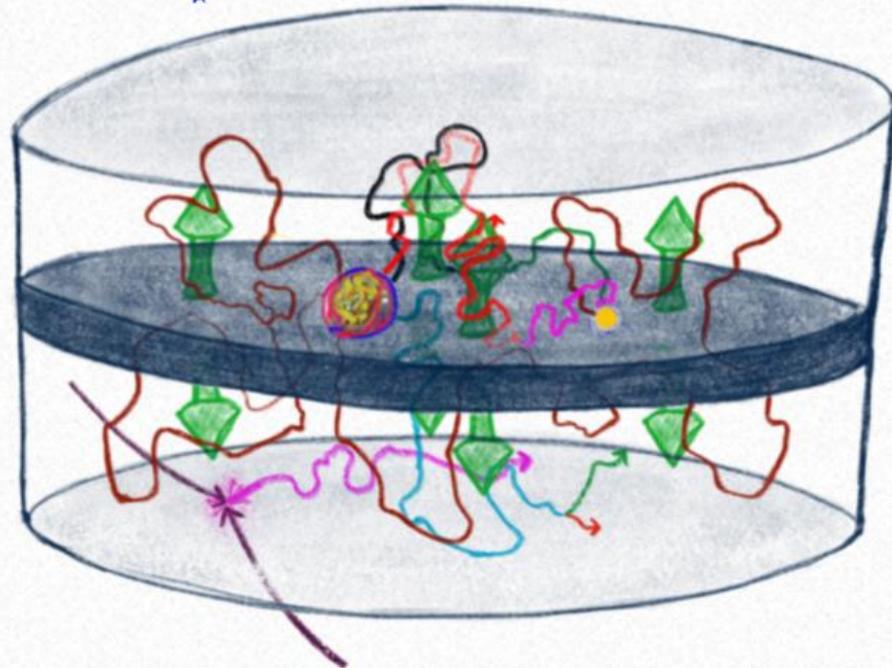
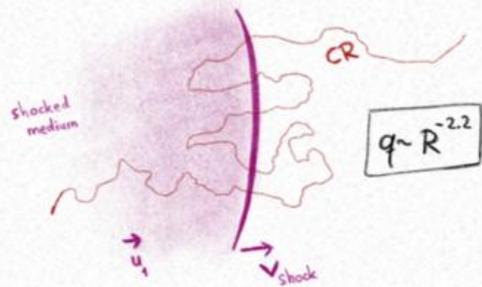
## DECAY



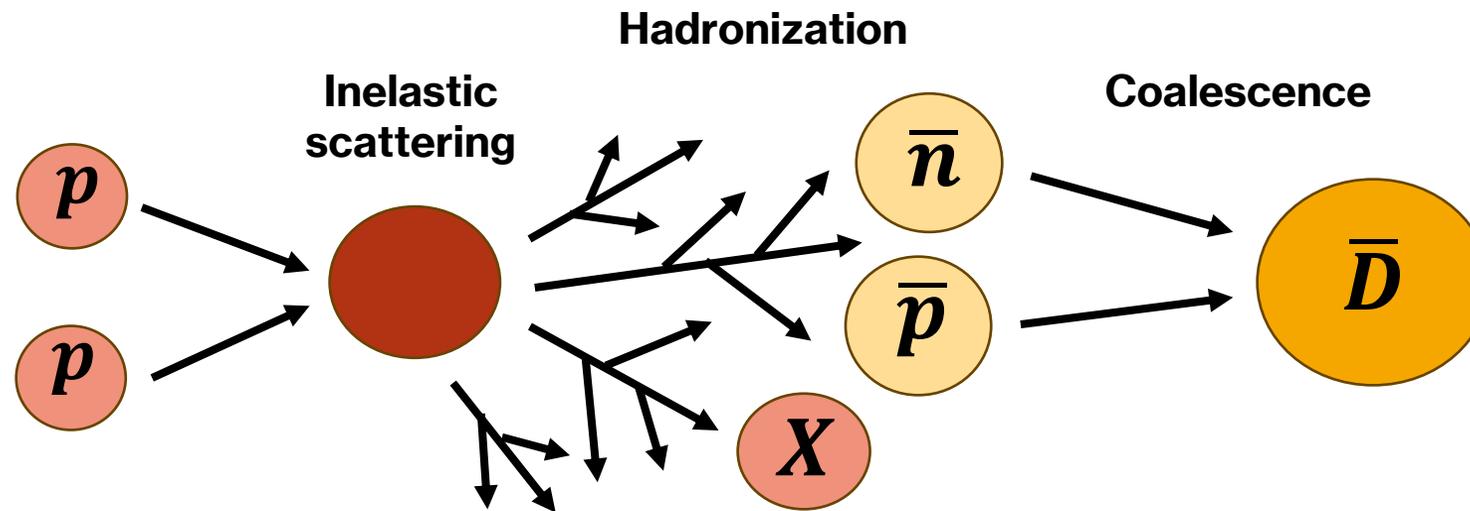
## DM ANNIHILATION



## FERMI SHOCK ACCELERATION

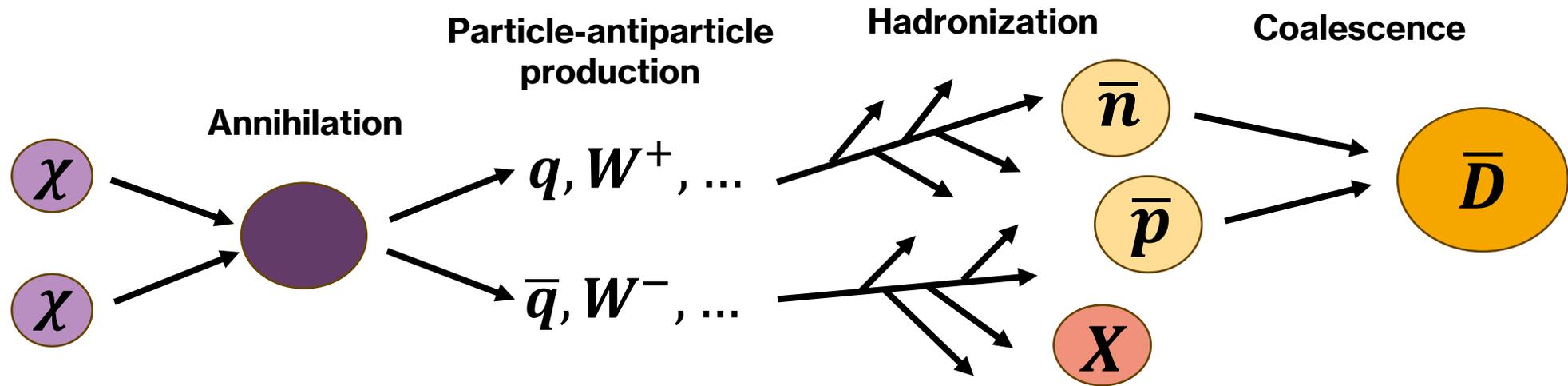


# $\bar{D}$ from spallation



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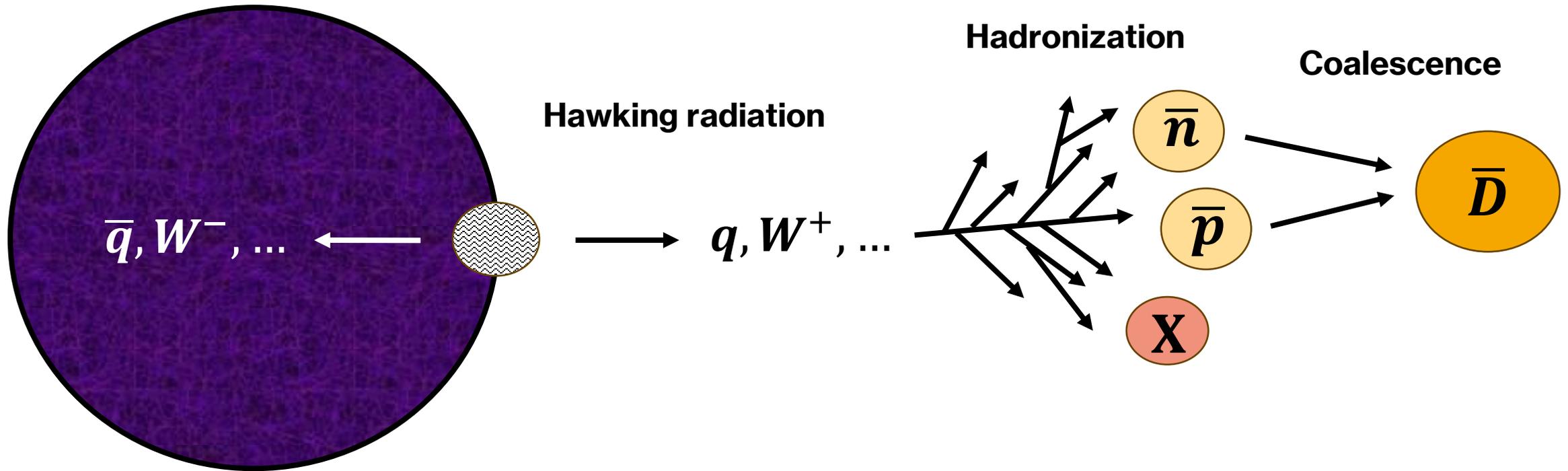
# $\bar{D}$ from WIMP annihilation



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# $\bar{D}$ from PBH evaporation

*MacGibbon 1990 PRD41(1990)3052*



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**Thanks for your  
attention**