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Feebly interacting massive particles (FIMPs) in modified early cosmology

Dylan Deraed

in collaboration with Laura Lopez Honorez, Julia Harz and María José Fernández Lozano

ULB

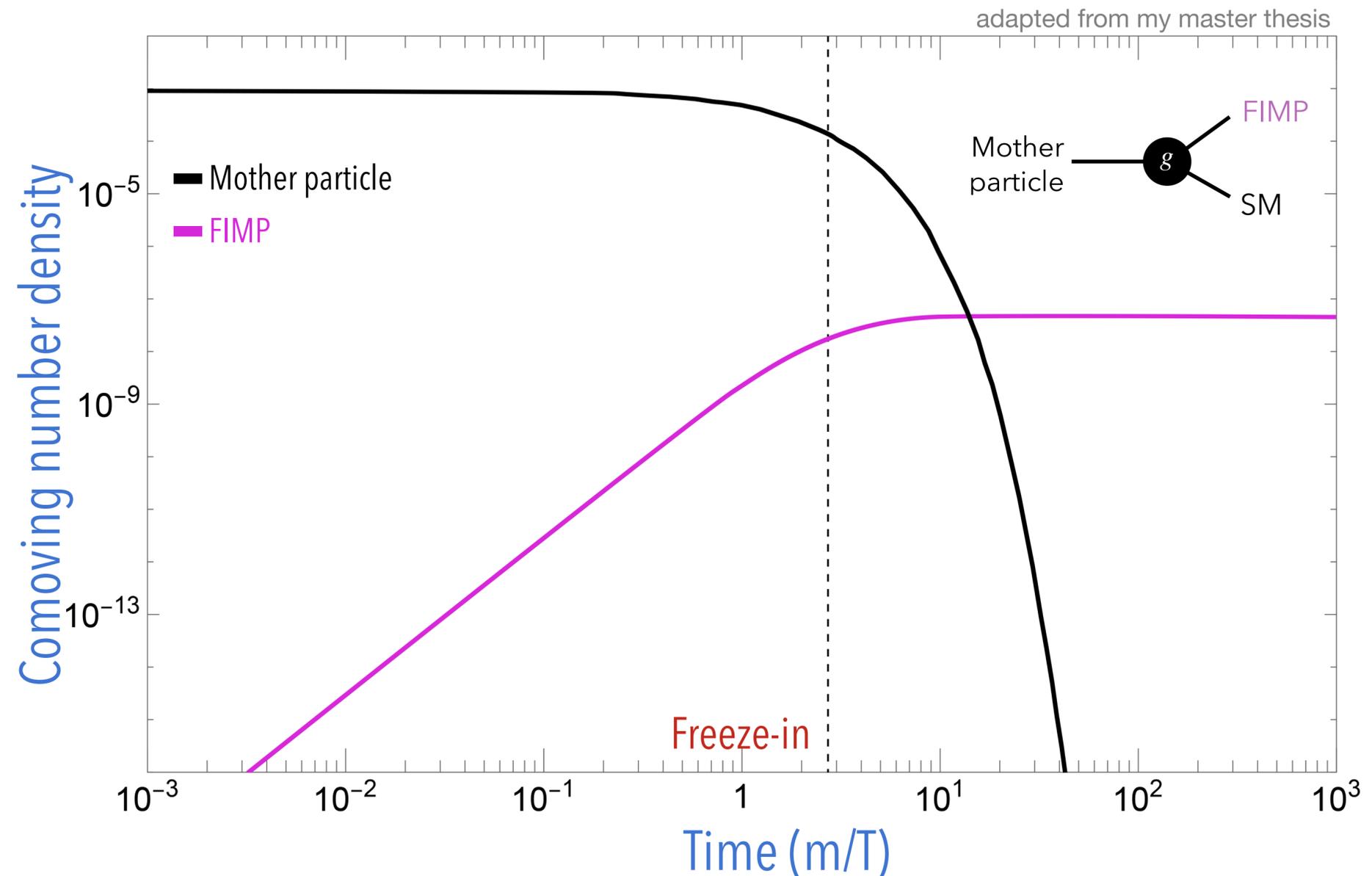
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What is a Feebly interacting massive particle (FIMP)

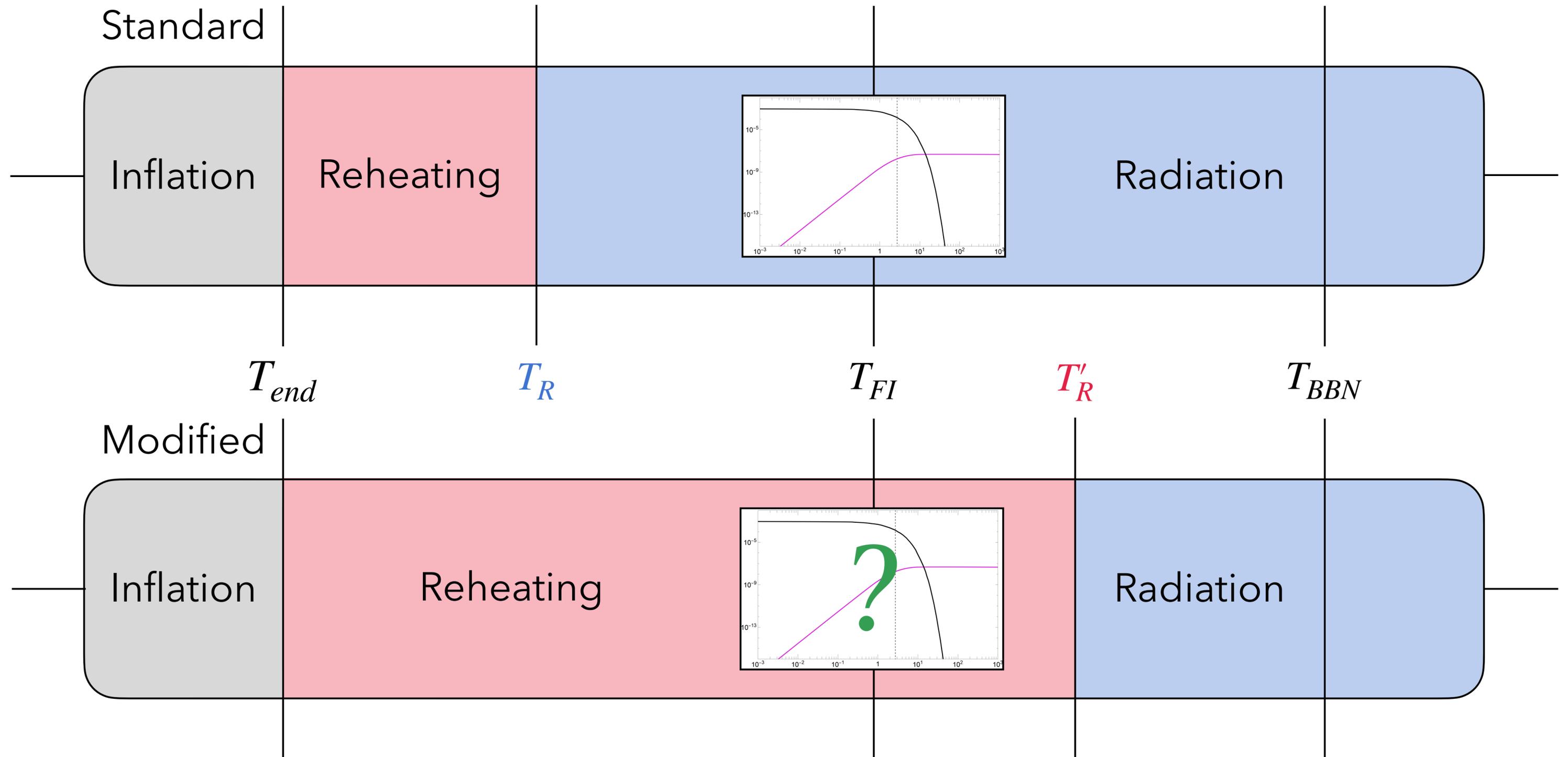
Feebly : very weak coupling
($g \sim 10^{-8} - 10^{-12}$)

Never in thermal equilibrium with
the primordial bath

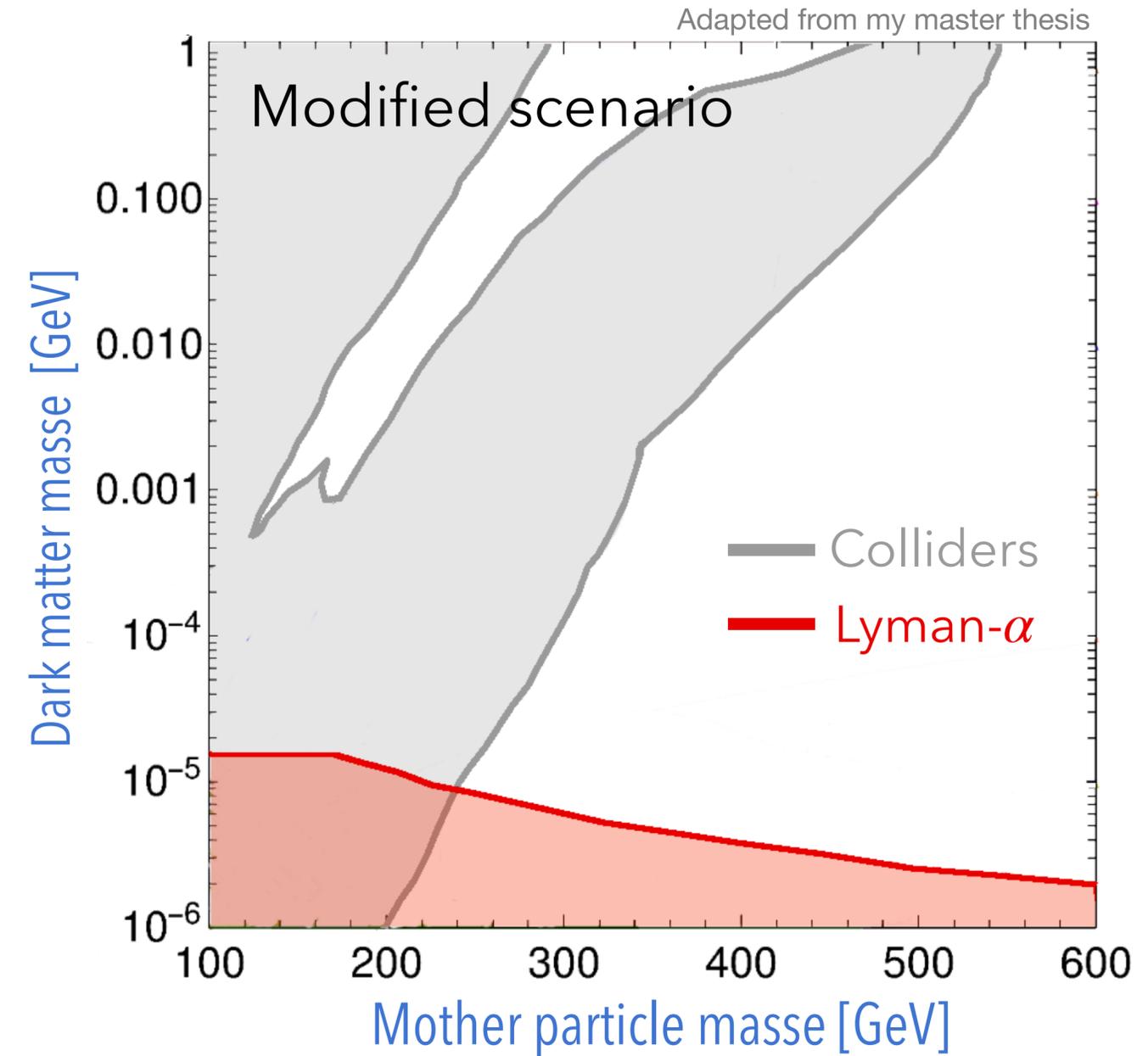
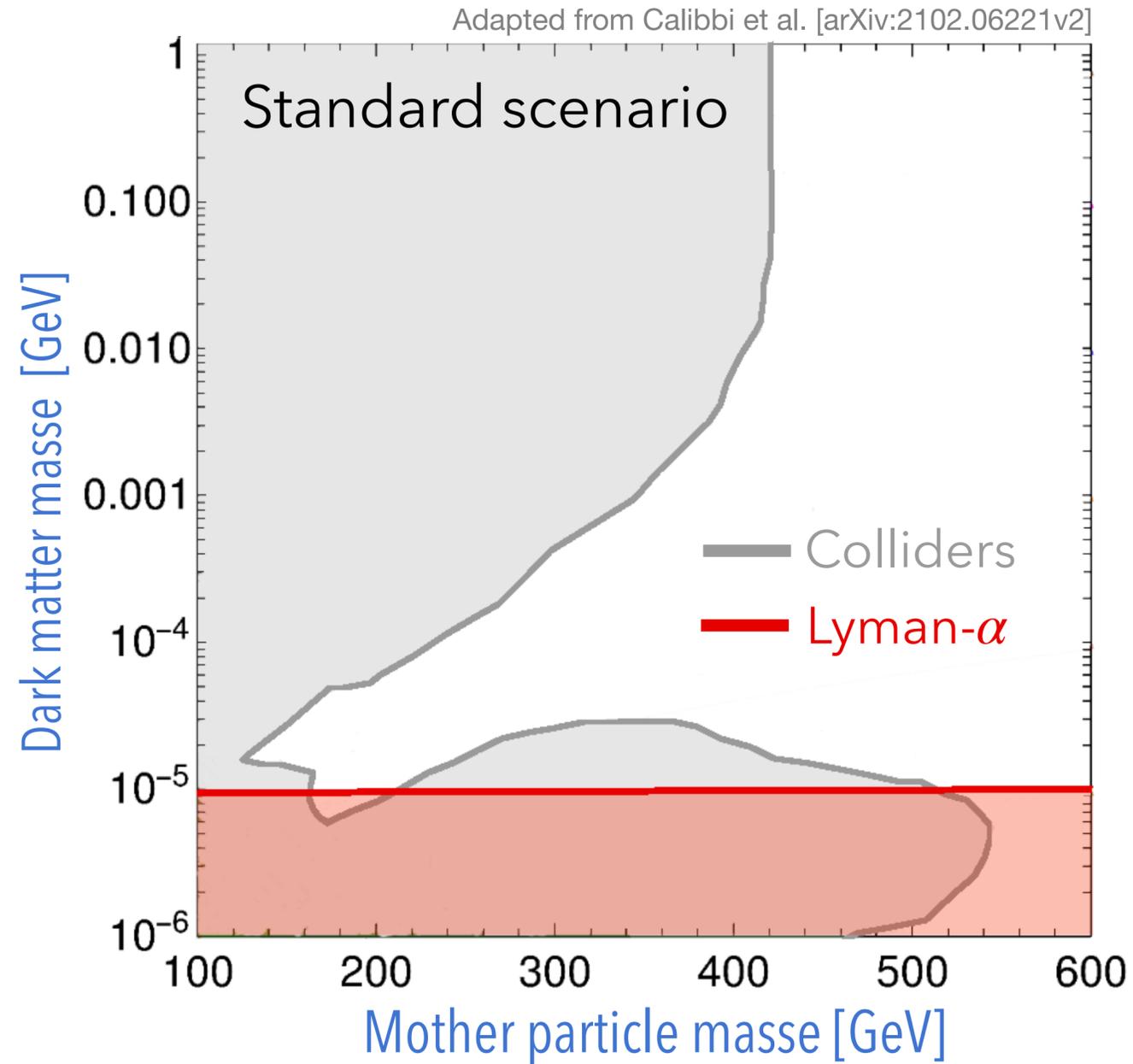
Produced through **Freeze-in (FI)**
with non-negligible velocity.



Standard vs Modified early cosmology



FIMP constraints



Dilution leads to higher couplings and lower velocity

Conclusion

Changing the history of the early universe affects the production and properties of FIMPs, leading to different constraints from both collider experiments and cosmological observations

Thank you !