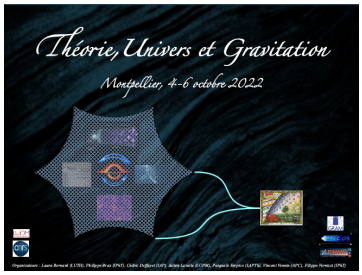

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Probing dark matter energy injection with the 21 cm power spectrum

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Observations of the 21 cm line of atomic hydrogen with radio telescopes will provide an unparalleled probe of the Universe between reionization ($z \sim$ 6-12) and cosmic dawn ($z \simeq 30$). Because exotic energy injection in the intergalactic medium via dark matter decay or annihilation can be particularly efficient in that redshift range (due to a long lifetime or clustering into halos), the 21 cm line is a prime observable for dark matter searches. In this talk, I will first argue for the prospective power of the 21 cm line to constrain or point toward the presence of dark matter. I will then present how exotic energy injection impacts the 21 cm line. Finally, I will introduce the first analysis of the 21 cm power spectrum sensitivity to dark matter decay/annihilation using a combination of simulation codes and numerical solvers.

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