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Particle Physics at LPTHE

Mardi 2 Fevrier 2021, 14 :00
LPTHE, Seminar via zoom https ://zoom.us/j/95696803823
Domaines : astro-ph—hep-ph—hep-th

Titre : *How warm are non-thermal relics ? Out-of-equilibrium dark matter production*

Orateur : **Mathias Pierre (IFT Madrid)**

Résumé : *By facing strong experimental constraints notably from direct detection, many dark matter scenarios based on the Weakly Interacting Massive Particles (WIMPs) paradigm are pushed towards corners of viable parameter space. Several alternative production mechanisms have received a lot of attention over the past few years. In this talk, I will present various possibilities of producing dark matter in a state out of thermal equilibrium. I will show that the non-thermal nature of the dark matter can leave an imprint on the matter power spectrum, which features a cutoff analogous to that for warm dark matter. I will present a mapping procedure that allows to translate the Lyman-alpha forest mass bound to such scenarios and discuss the phenomenological implications of these results.*