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Recent developments in supersymmetric QCD effects on dark matter annihilation

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The possibility to compute the relic density of the dark matter candidate is an interesting possibility to constrain the parameter space of supersymmetric models and to obtain complementary information with respect to collider searches and precision measurements. On the particle physics side of this calculation, the main uncertainty is due to the annihilation cross-section of the dark matter candidate, which can receive important corrections at the loop-level. I will present recent developments in the calculation of supersymmetric QCD corrections to the neutralino pair annihilation within the MSSM. I will discuss their impact on the annihilation cross-section and the resulting prediction for the relic density of the neutralino. Finally, I will show that the effect of the corrections is more important than the current experimental uncertainty of the WMAP measurements. In consequence, including the radiative corrections will become even more important when the satellite Planck will allow to determine the cosmological parameters with much better accuracy.

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