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Thesis Title	*Supersymmetric dark matter, direct and indirect detection*
Supervisor	V. Spanos, Associate Professor
Summary	In this master thesis we study the application of Supersymmetry on a Dark Matter model,where the Lightest Supersymmetric Particle (LSP)is the lightest neutralino. We assume that its relic density after the decoupling from the thermal background, contributes to the matter density of the Universe, and that there is a weak interaction between the LSP and the Standard Model particles. At the beginning, we study the calculation of the dark matter relic density, supposing that there exists a cross section and a decay rate into Standard Model particles, such that the number density of the Dark Matter particles is in accordance with the current cosmological density. Next, we examine the direct and indirect detectionof the Dark Matter, assuming that there is a density distribution in the Galactic halo, as well as in other regions in the universe, especially in the Sun. Finally, we perform a phenomenological analysis based on the Constrained Minimal Supersymmetric Standard Model, including various cosmological and accelerator data.
Key words	Cosmology, Dark Matter, Supersymmetric Dark Matter, detection of Dark Matter
Evaluation committee	V. Spanos, Associate Professor B. Georgalas, Associate Professor G. Diamantis, Associate Professor