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Nota di contenuto	Introduction -- Dark matter searches -- The MAGIC Telescopes -- Full Likelihood Method -- Dark Matter Searches in Dwarf Spheroidal Galaxy Segue 1 with MAGIC -- Future Prospects -- Conclusions.
Sommario/riassunto	This thesis presents the results of indirect dark matter searches in the gamma-ray sky of the near Universe, as seen by the MAGIC Telescopes. The author has proposed and led the 160 hours long observations of the dwarf spheroidal galaxy Segue 1, which is the deepest survey of any such object by any Cherenkov telescope so far. Furthermore, she developed and completely characterized a new method, dubbed “Full Likelihood”, that optimizes the sensitivity of Cherenkov instruments for detection of gamma-ray signals of dark matter origin. Compared to the standard analysis techniques, this novel approach introduces a sensitivity improvement of a factor of two (i.e. it requires 4 times less

observation time to achieve the same result). In addition, it allows a straightforward merger of results from different targets and/or detectors. By selecting the optimal observational target and combining its very deep exposure with the Full Likelihood analysis of the acquired data, the author has improved the existing MAGIC bounds to the dark matter properties by more than one order of magnitude. Furthermore, for particles more massive than a few hundred GeV, those are the strongest constraints from dwarf galaxies achieved by any gamma-ray instrument, both ground-based or space-borne alike.