PROSPECTS OF HIGH ENERGY STUDIES OF PULSARS WITH THE AGILE GAMMA-RAY TELESCOPE

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AGILE is a small gamma-ray astronomy mission of the Italian Space Agency, with good spatial resolution, excellent timing capability and an unprecedentedly large field of view (1/4 of the sky). It will be the only mission dedicated to high energy astrophysics in the range 30 MeV-50 GeV during the period 2003-2006, before the launch of GLAST. Besides studying the small sample of known gamma-ray pulsars, AGILE will offer the first possibility to detect several young and energetic radio pulsars that have been discovered after the end of the CGRO mission.

AGILE will contribute to the study of gamma-ray pulsars in several ways: (1) improving photon statistics for gamma-ray pulsations searches; (2) detecting possible secular variations of the gamma-ray emission from neutron star magnetospheres; (3) studying unpulsed gamma-ray emission from plerions in supernova remnants and searching for time variability of pulsar wind/nebula interactions; (4) helping to understand the population of unidentified EGRET sources that might consist in part of radio-quiet pulsars.

We will describe the AGILE satellite and provide an estimate of the expected number of the detectable gamma-ray pulsars.

The AGILE capabilities for the detection of gamma-ray pulsars with small counting statistics will be presented based on the analysis of data from simulations and from the EGRET archive.