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The Mini-Calorimeter onboard AGILE: the first year in space

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Summary

AGILE, the Italian space mission dedicated to gamma and hard-X astrophysics, was successfully launched on 23 April 2007 and is currently fully operative. The Mini-Calorimeter (MCAL) onboard the AGILE satellite is a scintillation detector made of 20 kg of segmented CsI(Tl) scintillators with photodiode readout with a total geometrical area of 1400 cm². MCAL can work both as a slave of the AGILE Silicon tracker and as an independent detector for gamma-ray bursts (GRB) detection in the 300 keV - 200 MeV energy range. Despite its limited thickness, due to weight constraints, MCAL has proven to successfully self-trigger GRBs at MeV energies providing photon-by-photon data with less than 2 microsec time resolution and almost all-sky detection capabilities. The MCAL design and characteristics, as well as the inflight performance after one year of operation in space and the scientific results obtained so far will be reviewed and discussed.

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