

A Tracking and Imaging Gamma-Ray Telescope (TIGRE) for Energies of 0.3 to 100 MeV

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TIGRE is an advanced telescope for γ -ray astronomy with a few arcmin resolution. From 0.3 to 10 MeV it is a Compton telescope. Above 1 MeV, its multi-layers of double sided silicon strip detectors allow for Compton recoil electron tracking and the unique determination for incident photon direction. From 10 to 100 MeV the tracking feature is utilized for γ -ray pair event reconstruction. Here we present TIGRE energy and angular resolutions, electron tracking measurements and electronics readout system. The scientific objectives of TIGRE on a long duration balloon flight or space mission will include high resolution imaging of the diffuse ^{26}Al and the annihilation radiation, and also the search for other nuclear lines. Other objectives include obtaining AGN and pulsar spectra and mapping of the Galactic continuum diffuse emission.