GAMMA-RAY OBSERVATIONS OF SUPERNOVA SN 1987A

C.A.W. Souza, J.A.C.F. Neri, U.B. Jayanthi

Theoretical investigations of supernovae explosions predict a high emission of gamma rays (~10^{-2} photons cm^{-2} s^{-1}) beginning around 300 days after explosion. A ballon-borne experiment was flown in October, 1987, to observe this emission. The payload carried 4 phoswich detectors of BGO/CsI and NaI/CsI with areas 169 cm^2 and 100 cm^2, respectively. The detectors sensitivity(for 10000 s at 3g/cm^3 with error bar of 3 σ) is about 10^{-3} - 10^{-4} photons. cm^{-2}. s^{-1} at energies above 200 KeV. The detectors mounted on a stabilized platform observed the supernova for about 2 hours. The data are being analized for pulsations (>0,5 ms) and gamma ray emission. Energy spectra and temporal analysis will be presented and discussed.

CHERENKOV TELESCOPE CLUSTER FOR VERY HIGH ENERGY GAMMA RAY OBSERVATIONS (OCTOGEMA)

J.A.C.F. Neri, U.B. Jayanthi, T. Villela, C.A.W. Souza

The very high energy gamma-ray (VHE) astronomy (> 10^{11} eV) is a receat field in astronomy. Usually VHE can be observed in cosmic ray showers, produced in many galactic and extragalactic sources. The VHE photons produce Cherenkov radiation in the atmosphereshich can be detected using photomultipliers coupled to parabolic mirrors. INPE proposal includes the construction of a telescope cluster operating in coincidence to determine VHE events position and, at the same time, to exclude random events. Expected fluxes are ~ 10^{-10} photons cm^{-2} s^{-1}.