

## MUON CHERENKOV TELESCOPE

I. Angelov (1), K. Davidkov (2), I. Kalapov (2), E. Malamova (2), J. Stamenov (2)

(1) Department of Physics, South-West University “Neofit Rilski” – Blagoevgrad, Bulgaria

(2) Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences

[i\\_angelov@gmx.net](mailto:i_angelov@gmx.net)

The Muon Cherenkov Telescope is constructed in order to study the variation of the muon component of cosmic rays and their correlation with solar activity and variations in the Earth's magnetosphere.

The telescope consists of water cherenkov detectors ( $0.25 \text{ m}^2$  each) placed in two parallel planes, 9 detectors in each, with 1.5 m distance between the planes.

Each of the detectors consists of a container with dimensions  $49 \times 49 \times 12.5 \text{ cm}$  made of glass with a mirror cover on the inner side. The container is filled with distilled water to 10 cm level. A photomultiplier is attached to a transparent circle at the floor of the container and a discriminator is placed in its housing. The detector gives 60 ns TTL pulse.

The telescope is situated at the ground floor of the SW University building, so that there is a  $430 \text{ g/cm}^3$  layer of concrete above it which leads to a muon energy threshold  $\sim 1 \text{ GeV}$ .

All the parameters of the detectors ( thickness of the radiator, power supply voltage of the photomultiplier, threshold of the discriminator, width of the pulse connected to the coincidence ) were optimized experimentally, so that the count-rate of each pair of detectors is  $\sim 100 \text{ min}^{-1}$ .

The telescope is in operation since august 2000.