

WIDE-ANGLE TELESKOP FOR REGISTRATION OF CERENKOV LIGHT REFLECTED BY SNOW SURFACE [THE MUSSALA ICE LAKE]

I. Angelov (2), I. Kirov (1), E. Malamova (1), J. Stamenov (1)

(1) Institute for Nuclear Research and Nuclear Energy, Bulgarian Academy of Sciences, 72 Tsarigradsko Chausse, Sofia 1784, Bulgaria

(2) Department of Physics, South West University "Neofit Rilski"- Blagoevgrad, Bulgaria

emalamova@gmx.net

The Cerenkov light reflected by snow surface gives the possibility for experimental investigation of the primary spectrum of cosmic ray with ultra high energies especially around the knee.

The Basic Observatory on peak Mussala (2925m a.s.l.) in Bulgaria provides a real opportunity for realization of this method because the Ice Lake is located 200 m below. Its surface retains an ice cover approximately 7 to 8 months of a year.

The center of the Ice Lake is viewed by two parabolic reflectors with 1-meter-diameter each under angle $\sim 48^\circ$ (225 meters high deference).

The response of the telescope is carefully studied using MC modeling. The obtained results are: the energy threshold, expected 'measured' pulse shape and pulse energy spectra.

The construction of the telescope was started in autumn 2000.