

A NEW CONCEPT FOR AN ACTIVE ELEMENT FOR THE LARGE COSMIC RAY CALORIMETER ANI

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For the ANI calorimeter (40 x 40 m², 8 concrete absorber layers of 1 m thickness each) at mount Aragatz, Armenia, a cheap and efficient active detector element is needed. One solution is to use long, square tubes (40 x 0.3 x 0.3 m³) filled with purified water and read out by 2 PMTs at both ends. The water is doped with a water soluble wavelength shifter which shifts and isotropises the short wave Cherenkov light from fast passing charged particles. For the crucial light transport along the tubes the walls will be lined by a new superreflector foil from 3M (dielectric reflector foil with R \geq 99%). From test measurements a light attenuation of a factor 10-15 over the full length is expected. Due to the high active material fraction of nearly 10% a good energy and spatial resolution is expected. Prototype results will be presented.