

Development of the Double Cascade Reconstruction Techniques in the Baikal-GVD Neutrino Telescope

Eliška Eckerová

Baikal-GVD Collaboration

Comenius University, Bratislava, Slovakia

Poster:

- One of the methods for astrophysical neutrino detection is an observation of high-energy tau neutrino, because the rate of tau neutrinos produced in the atmosphere is almost negligible.
- The double cascade signature is created in the charged current interaction of tau neutrino, if the resulting tau lepton decays into electron or hadrons.
- This contribution is about the development of three double cascade reconstruction techniques in the Baikal-GVD neutrino telescope:
 - The first one is the double pulse detection technique, aimed for the double cascade events with small distance between cascade vertices.
 - The second method is based on the identification of two distinct cascades created in a cluster.
 - The third technique is the multi-cluster double cascade identification method that combines single cascade reconstruction with multi-cluster events.