



# Pozvánka na seminár

## Ústavu experimentálnej fyziky SAV, v. v. i.



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„Neutrino telescopes as a tool in multi-messenger studies of Universe“

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### **Anotácia:**

Multi-messenger astronomy is a powerful tool to study the physical processes driving the non-thermal Universe. A combination of observations in cosmic rays, neutrinos, photons of all wavelengths and gravitational waves is expected. Neutrinos travel large distances undistorted by intergalactic magnetic fields and point directly to the source of their origin. Neutrino telescopes are usually designed to exploit optically transparent medium like water or ice as a detection medium to register Cherenkov light – blue and violet photons emitted by secondary charged particles traveling at a speed higher than the speed of light in the medium. These relativistic secondary particles are created in collisions of neutrinos with nuclei in the vicinity of the detector. Neutrino telescopes like IceCube (South Pole), Baikal-GVD (Siberia), and KM3NeT (Mediterranean Sea) are indeed three-dimensional arrays of light sensors (optical modules) – pressure resistant glass spheres which holds photo-multiplier tubes – very sensitive light sensors that are able to register a single photon with a nanosecond time precision. In this talk, recent status and future prospects of Baikal-GVD and KM3NeT detectors will be presented.

V Košiciach dňa 18. 11. 2022

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