The TAIGA observatory addresses ground-based gamma-ray astronomy at energies from a few TeV to several PeV, as well as cosmic ray physics from 100 TeV to several EeV and astroparticle physics. The TAIGA complex located in the Tunka valley, ~50 km West from the southern tip of the lake Baikal. In 2021 the TAIGA setup includes: integrating air Cherenkov TAIGA-HiSCORE array with 120 wide-angle optical stations distributed over on area ~1,2 square kilometers, three 4-m class Imaging Atmospheric Cherenkov Telescopes of the TAIGA-IACT array and the Tunka-Grande and TAIGA-Muon particle detectors (3 first clusters). The TAIGA-IACT array has a shape of triangle with side lengths of about 300m, 400m and 500m. The expected integral sensitivity of the 1 km^2. The combination of the wide angle timing Cherenkov array and IACTs could offer a cost effective-way to build a really large (up to 10 km^2) array for very high energy gamma-ray astronomy. The reconstruction of a given EAS energy, incoming direction and the core position, based on the TAIGA-HiSCORE data, allows one to increase the distance between the relatively expensive IACTs up to 600-800 m. These, together with the surface and underground electron/Muon detectors are used for selection of gamma-ray induced EAS.

The LIDAR on the International Space Station and the Calipso satellite have been used as tools for calibrating TAIGA. The measurement of the laser pulses from the mentioned satellites proved that accuracy of direction measurement with the TAIGA-HiSCORE is not worse than 0.1 degrees.

The energy spectrum of cosmic rays was reconstructed in the energy range 0,1 -1000 PeV. A number of features are observed in the energy spectrum. According to our data, in the energy range of 1 – 100 PeV, light nuclei – protons and helium dominate in the cosmic ray flux. In the next 2-3 years, a mass composition study will be continued with TAIGA-HiSCORE, TAIGA – IACT and the particle detectors.

One can speak about four conditional domains for the detection of gamma ray in the TAIGA experiment:

1. Autonomous operation of a single IACTs for $E < 10$-15 TeV
2. Stereoscopic approach for large distances between the IACTs for $E \geq 10$ TeV
3. Hybrid approach - joint operation of the TAIGA-HiSCORE and IACTs for $E \geq 40$ TeV.
4. Hybrid approach - joint operation of TAIGA-HiSCORE and muon detectors for $E \geq 300$-500 TeV

For the Crab Nebula observations during 40,5 hours we observe an excess 164 gamma-ray events (for Hillas parameter ALPHA < 10 degrees) with the significance of 6.3 sigma.. For stereoscopic approach for IACTs at distance 300 m the counting rate of joint events is ~1 Hz. The data analysis is in progress. In the framework of the hybrid approach we found 5 gamma candidate events with energy ~100 TeV in the Crab nebula direction.

In 2022-2023y we intend to deploy two more IACT. The effective area for events detected by 5 telescopes simultaneously will reach 0.9 km2 at an energy of 22 TeV. Then, by 2030, we plan to construct 10 square kilometers scale hybrid TAIGA array. For energy 30–200 TeV its expected sensitivity will be 5 10^{-14} TeV/cm^2 s for a point source observation during 500 hours,