We want to measure and explore cosmic phenomena of extremely high energies: cosmic rays of ultra high energy. We do not know what objects emit so much radiation, nor how they do it. That is why we want to measure them with new satellite techniques. We participate in two big international scientific Collaboration JEM-EUSO. We have built high voltage power supply systems for all EUSO test experiments.

Cosmic rays are energetic and stable particles and atomic nuclei coming from outside our Solar System. The most energetic ones are extremely rare. We observe them using the Earth's atmosphere as a target in which these particles interact and generate cascades of secondary particles, the number of which exceeds billions. We measure these cascades. The biggest experiment - Pierre Auger Observatory - has detectors on an area of about 3000 $km^2$ and observes about 1 cascade of ultra-high energy once every 2-3 weeks. The particles that generate such cascades have energies several million times greater than energy of each proton currently accelerated at CERN in a super-complicated accelerator. To measure even more of these cosmic ray particles, we want to build a detector - a space telescope that will observe much larger part of the atmosphere from the International Space Station. This will be a complicated, big, heavy and expensive experiment (EUSO). For now, we have built a few small experiments: two for balloons, one in the desert next to the second largest cascade detector - the Telescope Array and one small test experiment for the Space Station. We will analyze the data and build more detectors.

By the way, we will measure solar flares (also very energetic phenomena) and lightning and so called ionospheric discharges (most energetic phenomena in the atmosphere).

The main scientific task of this project is analysis of the data that has been obtained and will be obtained during the project. We also plan to continue our commitment to building subsequent experiments.