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The TAIGA experiment

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The TAIGA-experiment (Tunka Advanced Instrument for cosmic ray and Gamma ray Astrophysics) aims at gamma-astronomy in the multi-TeV to PeV energy range, using a new hybrid technology to build multi-km² gamma telescopes at competitive cost.

TAIGA uses the synergy of two complementary air shower detection techniques: widely spaced imaging air Cherenkov telescopes (IACTs) and a Cherenkov light shower front sampling array. The first has good gamma-hadron separation, while the second yields precision reconstruction of shower energy, direction and impact point.

This allows for large distances between IACTs of up to 800-1000m, i.e. a cost-effective mono-mode IACT operation.

The proof of principle of this new concept is underway with the TAIGA prototype array, that will be commissioned in 2019 in the Tunka valley in Siberia: three IACTs of (10degx10deg), embedded in a 1km² timing array with 120 detector stations.

We present results obtained with the current setup (0.5km² timing array with first IACT).

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