Contribution ID: **44** Type: **Original Talk**

High Energy Ray Observatory, optimization and current status

Tuesday, 27 June 2023 15:30 (15 minutes)

The High-Energy Ray Observatory (HERO) is a space experiment based on a heavy ionization calorimeter for direct study of cosmic rays. The effective geometric factor of the apparatus is not less than 12m2sr for protons and not less than 18m2sr for nuclei and electrons. During the exposure for ~5-7 years this mission will make it possible to measure energy spectra of all abundant cosmic ray nuclei in the knee region (~3 PeV) with individual resolution of charges with energy resolution better than 30% and provide useful information to solve the puzzle of the cosmic ray knee origin. HERO mission will make it also possible to measure energy spectra of cosmic rays nuclei for energies 1-1000 TeV with very high precision and energy resolution (up to 3% for calorimeter 70 tons) and study the fine structure of the spectra. The current status of the space mission is discussed.

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Session Classification: Cosmic rays of very high energies (> 1 PeV)

Track Classification: Cosmic rays of very high energies (> 1 PeV)