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## Tlen Shan Experimental Complex: Current Status, New Results, and Development Prospects

The report reviews the current state of research at the multifunctional detector complex of the Tien Shan highmountain scientific station of the Lebedev Physical Institute. The results of the search for new phenomena in the field of cosmic ray astrophysics, high-energy atmospheric physics, and geophysics are presented. In the field of cosmic ray astrophysics, the main results include the study of EAS with a non-standard time structure, the detection of scaling violation in cosmic rays, the detection of an excess of the muon component and an anomalous increase in the fluxes of thermal neutrons and gamma quanta accompanying the passage of EAS in the energy region of the "knee" in the cosmic ray spectrum, as well as the results of the development of a cosmic ray spectrum model taking into account the existence of particles of strange quark matter. In the field of high-energy atmospheric physics, experimental evidence on the relationship between cosmic rays and processes in the thunderstorm atmosphere are presented, and the results of studying the features of increasing the intensity of hard radiation at the moments of lightning discharges inside thunderstorm clouds are considered. In the field of geophysics, the results of multichannel monitoring of the radiation background in the TSHVNS area and the search for signals-precursors of seismic activity are presented. Prospects for upgrading the complex and new research areas are considered.

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