Germogen Filippovich Krymskiĭ (on his sixtieth birthday)

On November 18, 1997, Germogen Filippovich Krymskii, an outstanding theorist, celebrated his 60th birthday.

G F Krymskiĭ was born in the city of Olekminsk, Yakutiya, in the working family of F V Krymskiĭ and N N Krymskaya.

Major scientific interests of G F Krymskii became apparent as soon as he first set to work at the Institute of Cosmophysical Research and Aeronomics (ICPRA), the Siberian Division of the Russian Academy of Sciences (at that time, the Institute was incorporated in the Yakutsk Affiliated Centre of the Siberian Division). He began his scientific career in 1959, having graduated from the Physical Faculty, Yakutsk State University. Guided by professor A I Kuz'min of ICPRA, the young scientist soon found himself involved in the construction of the then unique underground spectrograph for recording high-energy cosmic rays. In the early sixties, this instrument was used to collect a wealth of experimental data which proved of great value for better understanding the physical principles of the interaction between cosmic rays and interplanetary medium. The potential for recording high-energy cosmic rays (10⁹- 10^{11} eV) was markedly enhanced due to a new method for conducting a global survey suggested and developed by Krymskii which allowed a worldwide system of ground detectors to be employed as a single multidirectional instrument. The practical application of this approach greatly facilitated the progress in experimental investigations of the varying intensity of cosmic rays.

When the conceptual basis for physics of interactions of cosmic rays with the interplanetary medium was being formulated in the early half of the sixties, G F Krymskii fundamental research made a major contribution to the advance of this area. In 1964, he suggested a comprehensive explanation for the so-called diurnal variations in the intensity of cosmic rays. This phenomenon was shown to be related to the anisotropy the angular distribution of cosmic ray due to the modulatory effect of the solar wind while the peculiar direction of anisotropy was ascribed to the effect of the interplanetary magnetic field. A quantitative description of this and some other effects became feasible based on the diffusion equation for cosmic ray transfer derived by Krymskii in 1964. This equation underlies the current theory of cosmic ray propagation and acceleration in interplanetary and interstellar media.

In the early seventies, G F Krymskii initiated a study on the mechanisms of cosmic ray acceleration (generation). A big success was achieved in 1974 when he managed to predict the regular acceleration of charged particles at shock wave fronts.

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Germogen Filippovich Krymskiĭ

Like any great idea, the discovery of regular acceleration gave rise to a new research field in cosmic ray physics. The results of numerous experiments carried out in the interplanetary space leave little doubt that regular acceleration plays an important role in the formation of high-energy particle spectra in space. There is every reason to believe that a major part of the observable cosmic rays of galactic origin are generated in what remains after supernova explosions due to regular acceleration. The theory of cosmic ray acceleration in supernova remnants developed by Krymskiĭ and his disciples provides the basis for predictions which can be directly verified by experiment. Recent progress in highenergy gamma-astronomy gives hope that experimental evidence will soon be obtained that the bulk of cosmic rays are actually generated in remnants of supernovae. Krymskii's theory is crucial for a deeper insight into this important problem.

Krymskii's works greatly influenced developments in cosmic ray physics. They are well-known to the scientific

community and have received world recognition. Also, the theory of cosmic ray acceleration by shock waves remains the focus of many studies currently in progress at ICPRA. Scientific ideas of G F Krymskiĭ gave impetus to further research on this line by his co-workers and disciples including 3 doctors and almost 20 candidates of sciences.

Germogen Filippovich Krymskiĭ is known to be a man of sensitive heart, kind to his colleagues and always ready to ease their troubles and grievances. His great optimism brings to him all those who need a helping hand to get over life's handicaps. This wins him the great respect of his numerous friends, colleagues, and disciples.

Krymskiĭ has been an efficient organizer of many important research projects. For over 20 years he headed the Theoretical Department of ICPRA and was director of this Institute for nine years. For another five years, he chaired the Presidium of the Yakutsk Research Centre.

Germogen Filippovich celebrated his sixtieth birthday full of ideas, in the prime of his creative abilities. We wish that he may fully realize them.

E G Berezhko, V L Ginzburg, G A Zherebtsov, G T Zatsepin, V E Zuev, V P Larionov, S I Nikol'skiĭ, A N Skrinskiĭ, E L Feĭnberg, A E Chudakov, D V Shirkov