ABOUT THE ORIGIN AND PROPAGATION OF COSMIC RAYS

A. Lagutin
Altai State University, Barnaul 656099, Russia.

We consider the problem of the cosmic ray spectrum formation assuming that cosmic rays are produced by galactic sources. The fractional diffusion equation proposed in our recent papers is used to describe the cosmic rays propagation in interstellar medium. We show that in the framework of this approach it is possible to explain the locally observed basic feature of the cosmic rays in the energy region $10^{10} \div 10^{20}$eV: distinction in spectral exponent of protous and other nuclei below 10^{14} eV, mass composition variation at $E \geq 10^{10}$ eV, "knee" problem, flattering of the primary spectrum at $E \geq 10^{18} \div 10^{19}$ eV, anisotropy dependence on primary energy.