Abstract number: S5-51
General anisotropy
45 min. overview talk

Anisotropy of galactic cosmic rays

Schlickeiser, Reinhard[1], Caglar, Mustafa[1] and He, Hongqing[1]
[1]Institut für Theoretische Physik IV, Ruhr-Universität Bochum

The observed anisotropy of galactic cosmic rays up to energies of 10^{17} eV is small, so that the diffusion approximation to cosmic ray transport is well justified. The resulting anisotropy, including the effect of adiabatic focusing, consists of at least two parts: (1) the streaming anisotropy proportional to the spatial gradient $\partial F_0/\partial z$ of the isotropic part of the cosmic ray gradient, and (2) the Compton-Getting anisotropy proportional to the momentum gradient $\partial F_0/\partial p$. With the solution of the focused diffusion-convection transport equation for F_0 we determine the momentum dependences of the dipol anisotropies of the streaming and Compton-Getting anisotropies at the position of the Solar System for different spatial cosmic ray source distributions for a wide range of cosmic ray momenta.