ON THE DESCRIPTION OF THE TURBULENT DIFFUSION MODEL

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The Standard Leaky Box model is based on an injection spectrum of close to E^{-2} as a natural consequence of strong parallel shock acceleration models. Accordingly, an empirical energy dependence of $E^{-0.6}$ for propagation distance in the Galaxy is invoked to interpret the observed spectrum below 10^5 GeV. There are strong arguments, on the other hand, that the interstellar propagation must be based on turbulent diffusion with an energy dependence of $E^{-1/3}$. A theory of origin and transport of cosmic-rays incorporating this concept has already been formulated. In this theory the bulk of cosmic-ray spallation takes place in the shell of stellar winds, and light and heavy nuclei have different propagation parameters. The diffusive parameters are obtained from the primary source spectra and are calculated from the measurement of observed seconadary fluxes. The observational data on heavy secondaries such as Sc, Ti and V determine the parameters of massive stellar wind shells, while measurement of light secondary elements such as Li, Be and B constrain the surrounding region of low mass stars. The inferred propagation parameters also depend on the choice of Initial Mass Function of stars. Once these parameters are set, they can be checked by measurement of other secondaries such as ^{3}He, D, and $\bar{p}$. In this report we discuss how this modeling is done.