DISPERSIONS OF COMPOSITE PARAMETERS FOR MOLIÈRE ANGULAR DISTRIBUTION DUE TO DIFFERENCE OF PARTICLES AND SCATTERERS

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Kamata and Nishimura formulated Molière theory of multiple Coulomb scattering in far simple way by introducing the constants specific to substance. It will be valuable especially for our simulation works where the theory is referred to vast times in tracing charged particles. Composite variables exhist to uniformly describe the characteristic parameters of distribution irespective of substance under the relativistic condition. Under the moderate energy condition there still remain some weak dispersions due to the configuration of Molière screening model. We have found dispersions of parameters describing angular distribution are negligibly small from light substances to heavy ones after we have introduced the composite variables, although the dispersion due to different masses are found not negligible. These investigations will be helpful in acquiring a practical method to get the angular distribution in simulation works and other applications.