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Improved separation of hard and soft components in the multiple Coulomb scattering distribution

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Evaluation of the angular distribution function of multiple Coulomb scattering is improved by deforming the integration contour in the Fourier integral representation into the complex plane of impact parameters. That allows to express the distribution function as a sum of two positive components, hard and soft. The soft component is close to a Gaussian, whereas the hard component incorporates the Rutherford asymptotics and all the power corrections to it at large scattering angles, while vanishing in the forward direction. The total number of particles in the so defined hard component logarithmically decreases with the target thickness.

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