RAINBOW SCATTERING IN MULTILAYERED TARGETS

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We consider fast charged particles scattering on parallel atomic planes in the eikonal approximation of quantum electrodynamics. The eikonal approximation was chosen because it both can account for quantum nature of the incident particle and has a wider region of applicability compared to the frequently used Born approximation. Based on Glauber's approach, we continued our previous works and showed how to simplify the calculation of the cross section of scattering on targets consisting of isolated structures in the eikonal approximation. In particular, this method can be used to obtain the differential cross section of scattering on atomic planes in crystals or on multilayered targets like multilayered graphene. It was shown that scattering patterns are specific for different numbers of layers (atomic planes). So for relatively small number of layers in the target, differential scattering cross section can be used as diagnostic tool for the target structure.