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Kinetics of polarization and filtering

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A general kinetic equation is used to describe the evolution of polarization in non-relativistic scattering. The most detailed consideration is performed for the case of spin 1/2 projectile particle interacting with spin 1/2 particle of a target. The solution of the kinetic equation for the case of zero initial polarization is presented. The case of filtering, when some particles are scattered out of the beam, is also discussed. Calculations are performed for antiproton polarization buildup during scattering off a polarized proton target. The predictions for the polarization degree and for the time of polarization obtained within different potential models are presented.

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