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Uniform derivation of Coulomb collisional transport thanks to Debye shielding DOMINIQUE ESCANDE, CNRS, umr 7345 Aix-Marseilles univ., piim, Marseilles, FR, YVES ELSKENS, Aix-Marseilles univ., umr 7345 CNRS, piim, Marseilles, FR, FABRICE DOVEIL, CNRS, umr 7345 Aix-Marseilles univ., piim, Marseilles, FR — The effective potential acting on particles in plasmas being essentially the Debye-shielded Coulomb potential, the particles collisional transport in thermal equilibrium is calculated [1] for all impact parameters b, with a convergent expression reducing to Rutherford scattering for small b, in agreement with both usual expressions holding for large b [2] and small b [3]. No cutoff at the Debye length scale is needed, and the Coulomb logarithm is only slightly modified. [1] D.F. Escande, Y. Elskens, F. Doveil, J. Plas. Phys. 81 (2015) 305810101 (9 pp.). [2] S. Gasiorowicz, M. Neuman, R.J. Riddell Jr, Phys. Rev. 101 (1956) 922-934. [3] M.N. Rosenbluth, W.M. MacDonald & D.L. Judd, Phys. Rev. 107 (1957) 1-6.

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