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Elastic scattering of slow positrons on atoms¹ MIRON AMUSIA, Racah Institute of Physics, Hebrew University, Jerusalem, Israel; Ioffe Physical-Technical Institute, St. Petersburg, Russian Federation, NIKOLAI CHEREPKOV, State University of Aerospace Instrumentation, St. Petersburg, Russian Federation, LARISSA CHERNYSHEVA, Ioffe Physical-Technical Institute, St. Petersburg, Russian Federation — The results of calculations are presented of the elastic scattering cross section of positrons upon noble gas and alkali atoms. The calculations are performed in the one-electron Hartree-Fock approximation, with account of multi-electron correlations in the lowest order and in the frame of essentially refined so-called Random Phase Approximation with Exchange (RPAE). The modification that comes from considerable improving of our code proved to be prominent. Virtual positronium formation that was taken into account appeared to be very important, noticeably bigger than in the lowest approximation to RPAE. Arguments are presented that for alkali atoms the positron's polarization potential is repulsive. The results obtained in this paper proved to be in reasonable agreement with experiment and with some previously reported calculations.

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