Abstract Submitted
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Behavior of Regge Poles with Increasing Potential Strength[1] R.H. PRATT, N.B. AVDONINA, University of Pittsburgh — We illustrate, using the example of a model but realistic potential, that the family of the Regge pole trajectories (RPT) moves to the right along the real l-axis with increasing atomic charge Z. Every time Z exceeds Z=Z_N, the Z at which the Nth bound s-state first appears at zero energy, one more trajectory joins the RPT family in the first quadrant of the complex l-plane, coming from the left side of the real l-axis. Since for atoms with Z< Z_Na part of the RPT rise off the real l-axis near but before integer values of l we can expect that for such atoms there will be resonances in electron scattering cross sections . The number of resonances depends on N=n+l (n is the principal quantum number)[1]. We have calculated energies and widths for these resonances in the model potential using a perturbation theory approach.

[1]Yu. N. Demkov and V. N. Ostrovskii, Sov. Phys. JETP 33, 867, (1971).

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