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The high-energy satellites of Lα_2 X-Ray transition in higher-Z atoms SURENDRA POONIA, Research Scientist (Atomic and X-Ray Spectroscopy) — The X-ray satellite spectra arising due to $2p_{3/2}^{-1}3x^{-1}$-$3x^{-1}3d^{-1}$ (x≡s,p,d) transition array, in elements with Z=73 to 90, have been calculated. The energies of various transitions of the array have been determined by using available Hartree-Fock-Slater data on $1s^{-1}$-$2p^{-1}3x^{-1}$ and $2p_{3/2}^{-1}$-$3x^{-1}$,$3x'^{-1}$ Auger transition energies and their relative intensities have been estimated by considering cross - sections of singly ionized $2x^{-1}$ (x ≡ s, p) states and then of subsequent Coster-Kronig and shake off processes. The calculated spectra have been compared with the measured satellite energies in Lα_2 spectra. It has been established that one satellite observed in the Lα_2 region of the X-ray spectra of various elements and named $\alpha_s$in order of increasing energy are mainly emitted by $2p_{3/2}^{-1}3d^{-1}$-$3d^{-2}$ transitions. It is observed that the satellite α_s in all these spectra can be assigned to the superposition of three intense transitions namely $^3P_1-^3D_1$, $^3D_2-^3D_3$ and $^3D_2-^3D_1$. The three remaining satellites in $_{80}$Hg namely La_{13}, La_{14} and La_{17} are found to have different origin in different elements.

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