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Energies, radiative rates and Auger branching ratios of core-excited resonances for B-like isoelectronic sequence[1] BINGCONG GOU, YAN SUN, CUICUI SANG, School of Physics, Beijing Institute of Technology, Beijing 100081, China — The relativistic energies, fine-structures, radiative rates, and Auger branching ratios of the core-excited $1s2p^4$ states for B-like isoelectronic sequences are studied using the saddle-point variation method and saddle-point complex-rotation method. Large-scale wavefunctions are used to obtain reliable results. Relativistic corrections and mass polarization effects are taken into account with first-order perturbation theory. The radiative rates of these states are reported and compared with available theoretical and experimental results. The radiative and Auger transition rates regularly change along the Boron isoelectronic sequence has been investigated. The Auger branching ratios of these resonances are discussed using spin-alignment-dependent theory. Calculated Auger channel energies and branching ratios are used to identify high resolution Auger spectrum in the collision experiments. Several unidentified experimental Auger lines are assigned. It is found that Auger decay of the five-electron core-excited states give significant contributions to the experimental Auger spectrum.

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