

INFLUENCE OF IONIZING PARTICLE TYPE
AND ENERGY ON X-RAY $KL_{2,3}$ -EMISSION
INTENSITY OF SILICON ATOMS

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S u m m a r y

The relative intensity of X-ray emission $K\alpha_3$ - and $K\alpha_4$ -lines of silicon $\gamma = I(K\alpha_3)/I(K\alpha_4)$ is experimentally studied under photon and electron excitation in a wide range of the energy of incident particles. It is found that the dependences $\gamma_{ph}(\varepsilon)$ for photoionization and $\gamma_{el}(\varepsilon)$ for electron impact differ significantly. Specifically, $\gamma_{ph}(\varepsilon) \approx \gamma_{el}(\varepsilon)$ only when $\varepsilon \approx 4$. In the range $\varepsilon < 4$ with the energy of incident particles approaching the $KL_{2,3}$ -threshold relative intensity, γ_{el} decreases. For $\varepsilon > 4$, γ_{ph} remains constant, but γ_{el} decreases (the greatest effect $\approx 12\%$ at $\varepsilon = 30 \div 40$). The latter result may be caused by an increase of the mean energy transmitted to the atom by an ionizing particle, beginning from $\varepsilon = (6 \div 8)$.