

PHOTOELECTRON EMISSION FROM
COPPER-CONTAINING BARIUM OXIDE

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S u m m a r y

We have investigated spectral characteristics of photoelectron emission in the UV range of the spectrum from polycrystalline copper of technical purity, containing 1–8% of barium oxide. A method of activation of Cu–BaO photocathodes including the sequentially used procedures of heat and laser treatments is developed. It is shown that photoelectron emission of materials is in agreement with Fowler's law for the near-free-electron model. Emitted electrons may originate from the conduction band of copper. BaO inclusions in the copper matrix serve as a source of the BaO layer coating the Cu surface and reducing its electron work function. The photoemission quantum yield is found to grow up with increasing the BaO concentration. The quantum yield amounts up to $\sim 3 \cdot 10^{-3}$ for the energy of quanta of 5 eV.