

electron work function, Φ

The minimum work needed to extract electrons from the *Fermi level* of a metal M across a surface carrying no net charge. It is equal to the sum of the potential energy and the kinetic *Fermi energy* taken with the reverse sign:

$$\Phi^{\text{M}} = -(V_{\text{e}} + \varepsilon_{\text{e}}^{\text{F}})$$

where V_{e} is the potential energy for electrons in metals and $\varepsilon_{\text{e}}^{\text{F}}$ is the kinetic energy of electrons at the Fermi level.

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