Giunzione MS

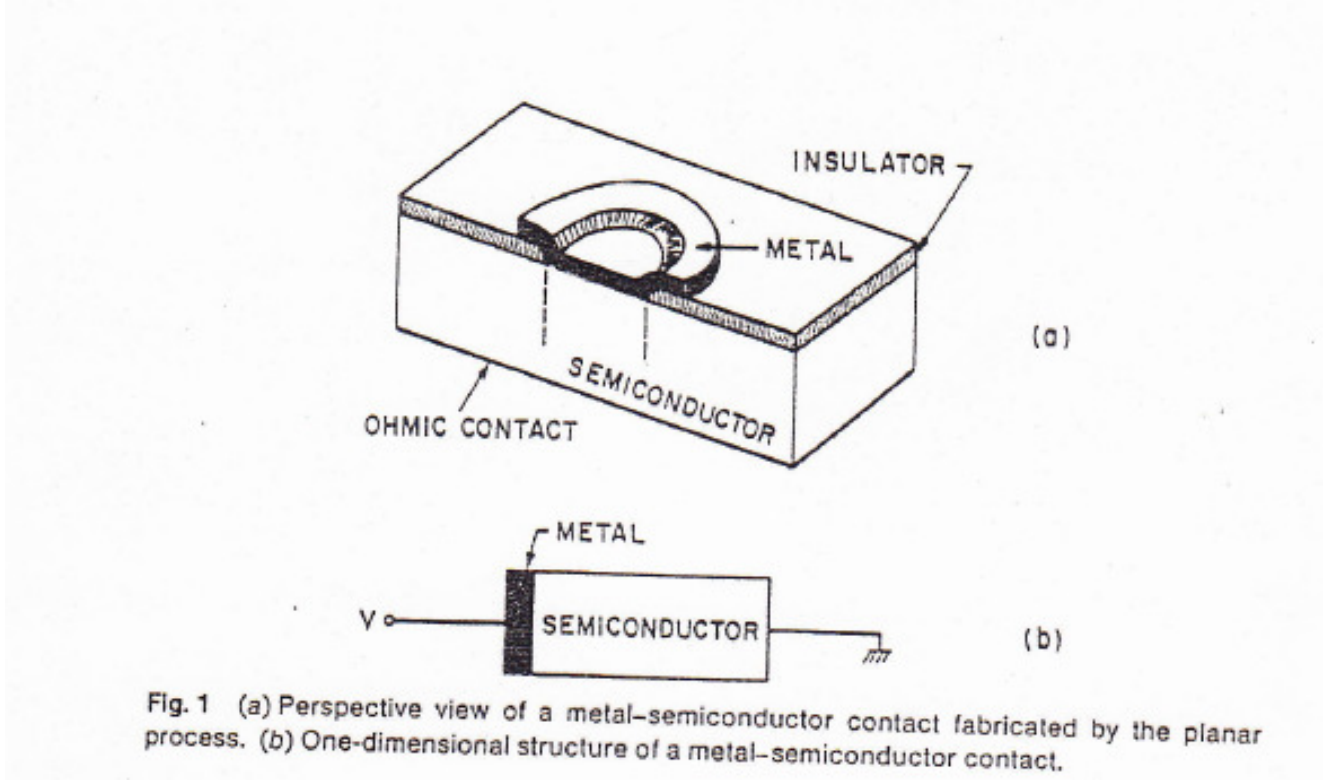
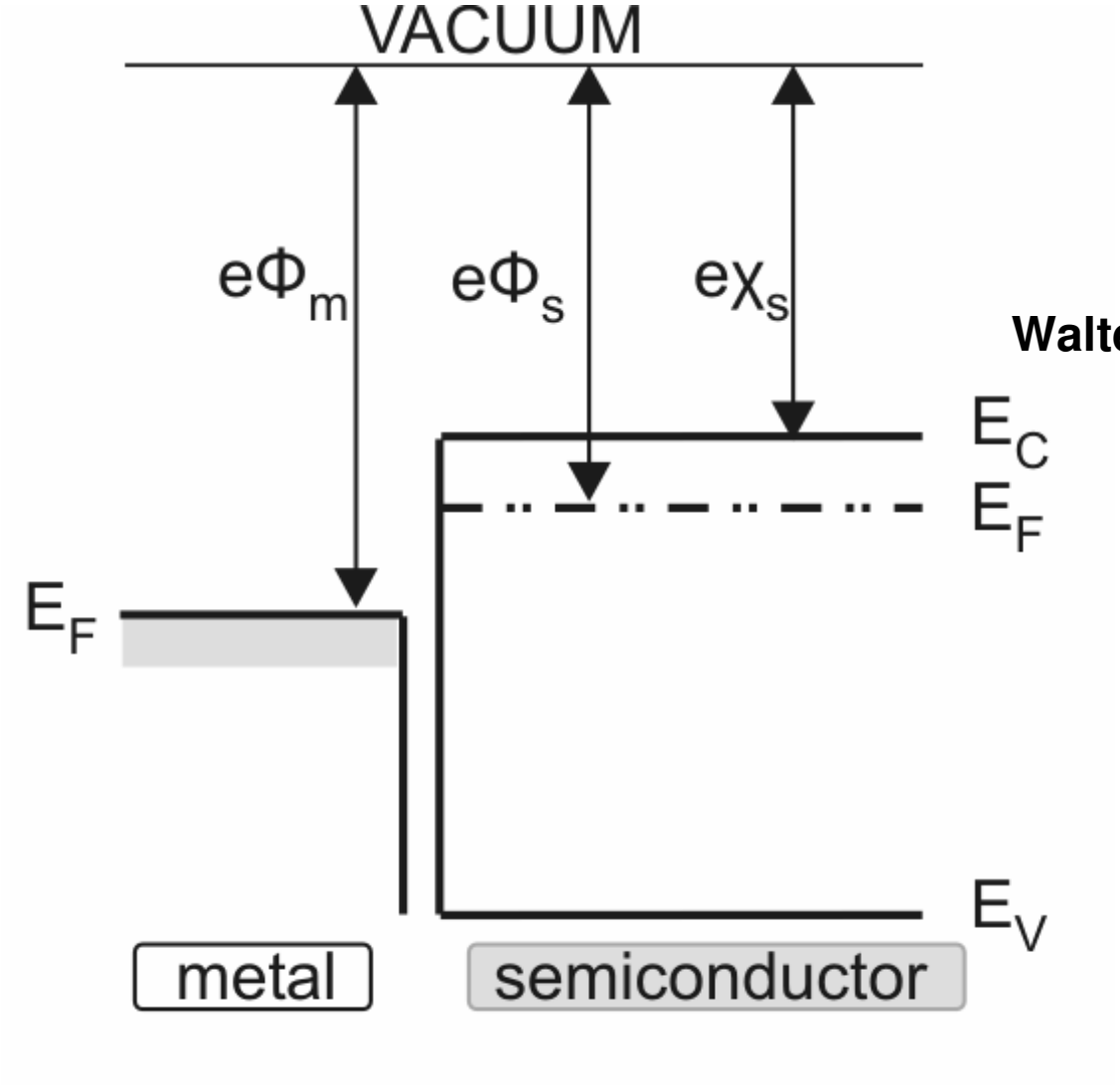


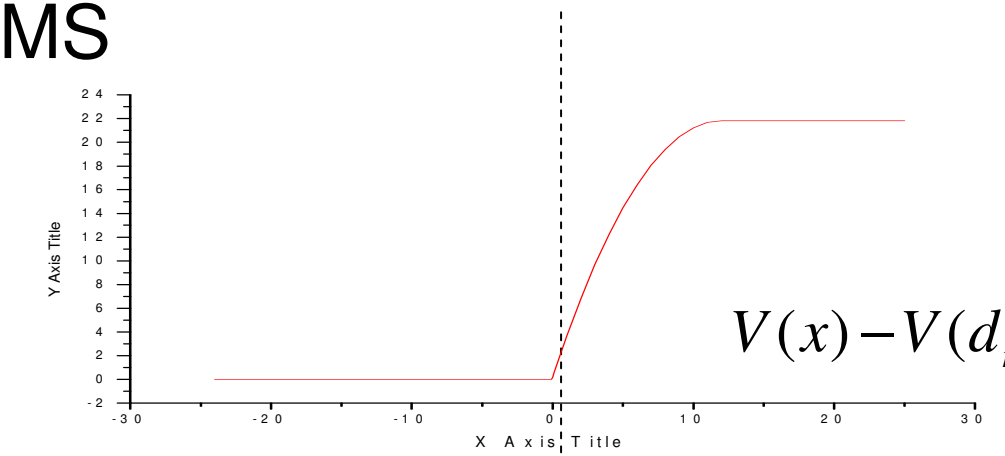
Fig. 1 (a) Perspective view of a metal–semiconductor contact fabricated by the planar process. (b) One-dimensional structure of a metal–semiconductor contact.

Giunzione MS (n doping)

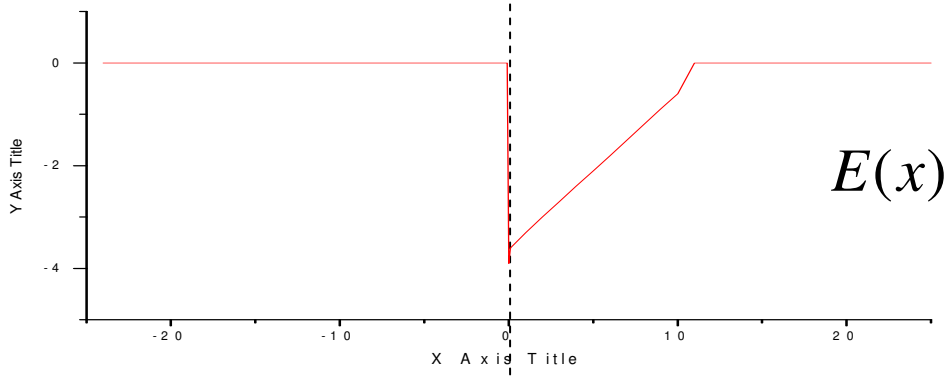


Walter Schottky (1886-1976)

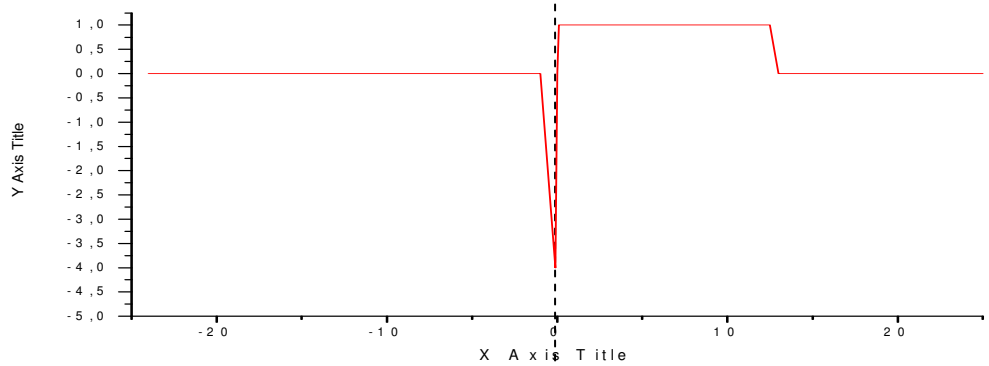
Giunzione MS



$$V(x) - V(d_n) = -\int_{-d_n}^{x} E(x')dx'$$



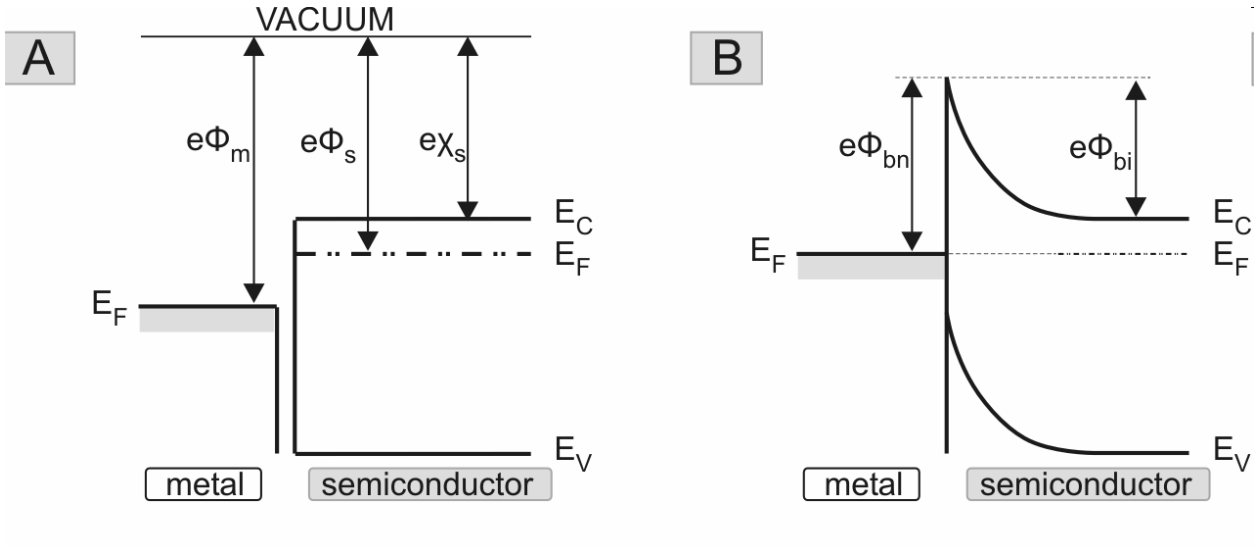
$$E(x) = \frac{1}{\varepsilon}\int_{-d_n}^{d_p} \rho(x')dx'$$



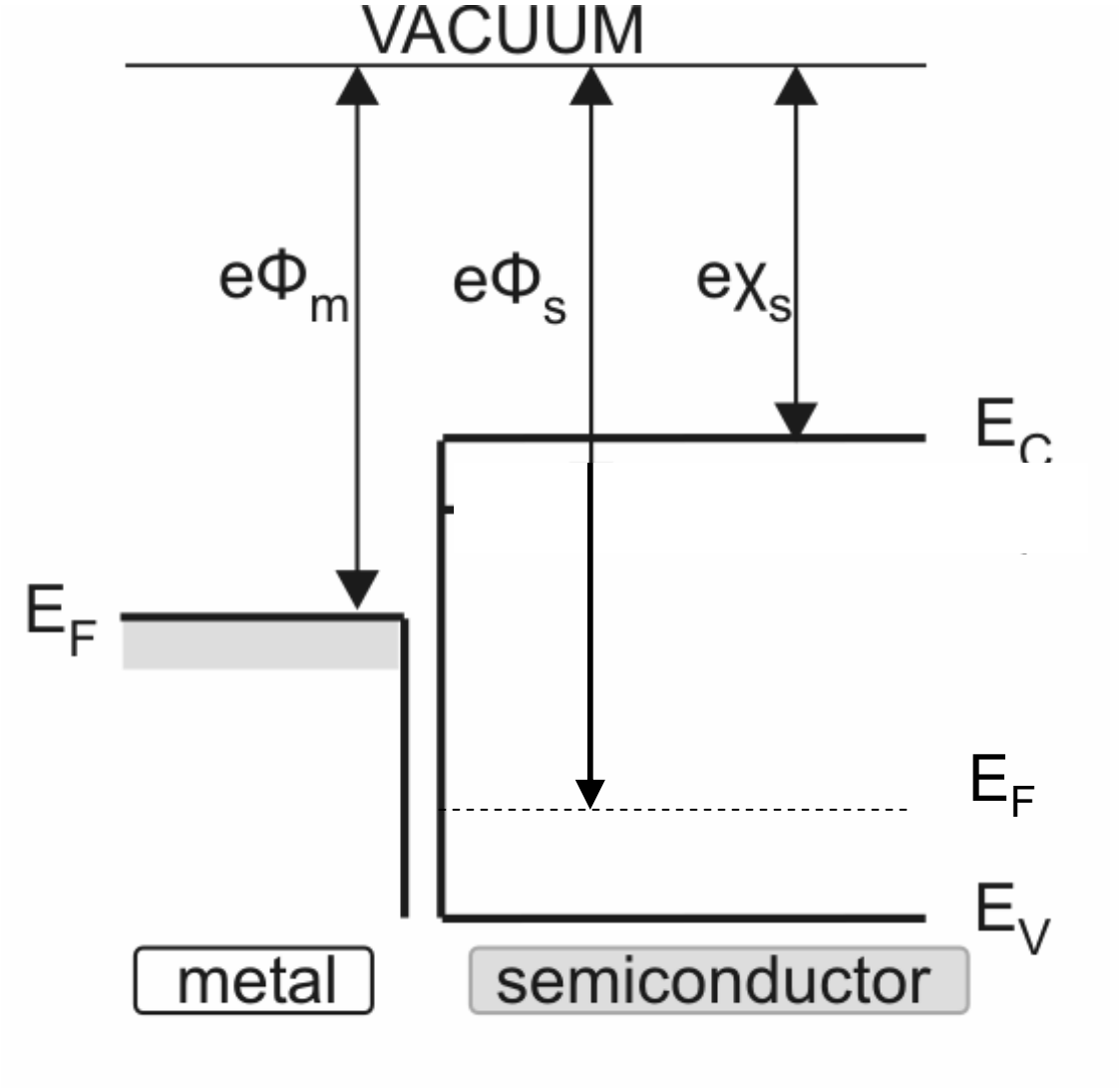
$$\rho(x) = \varepsilon \frac{dE}{dx}$$

W

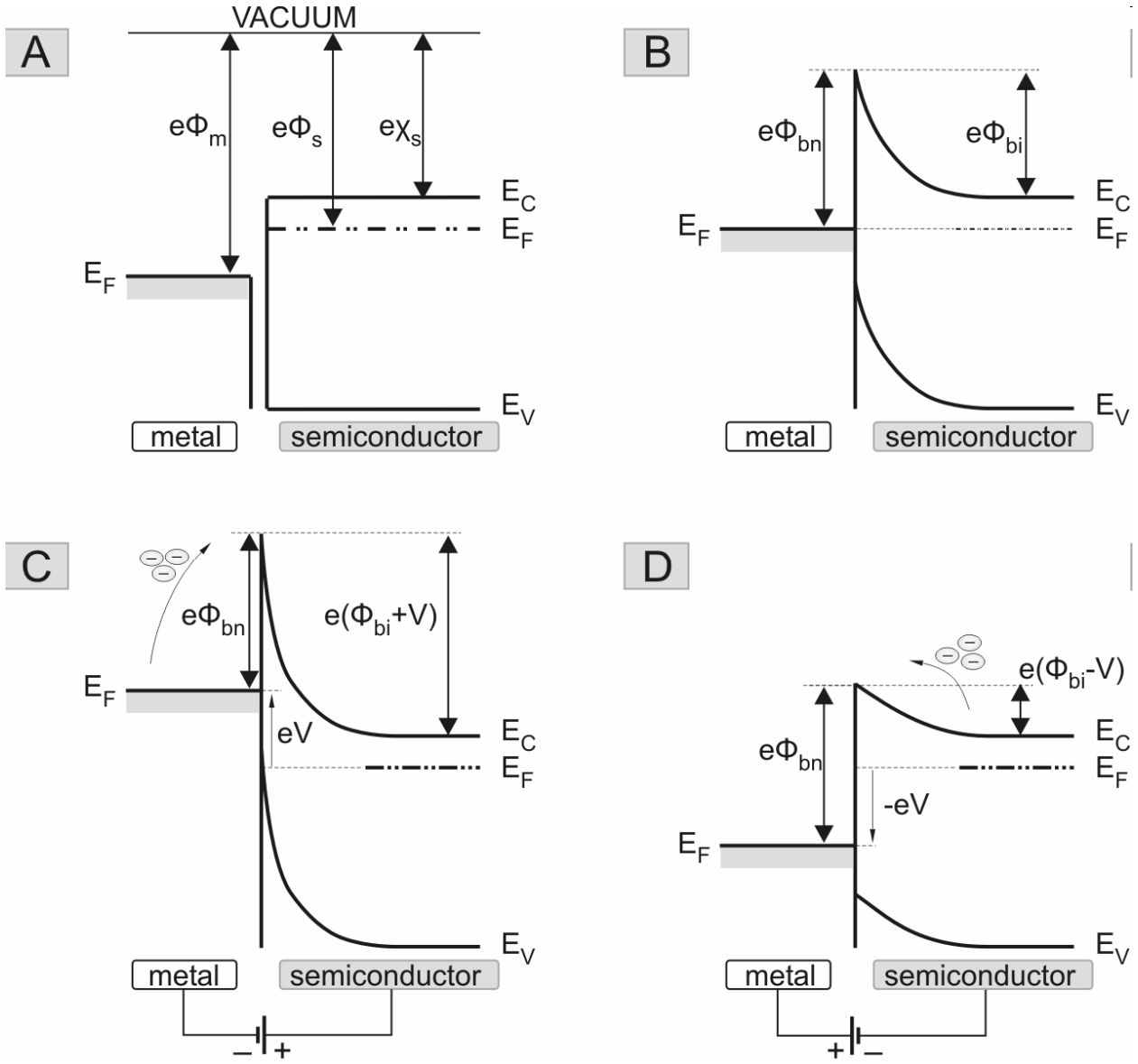
Giunzione MS



Giunzione MS (p doping)



Giunzione MS



Corrente termoionica

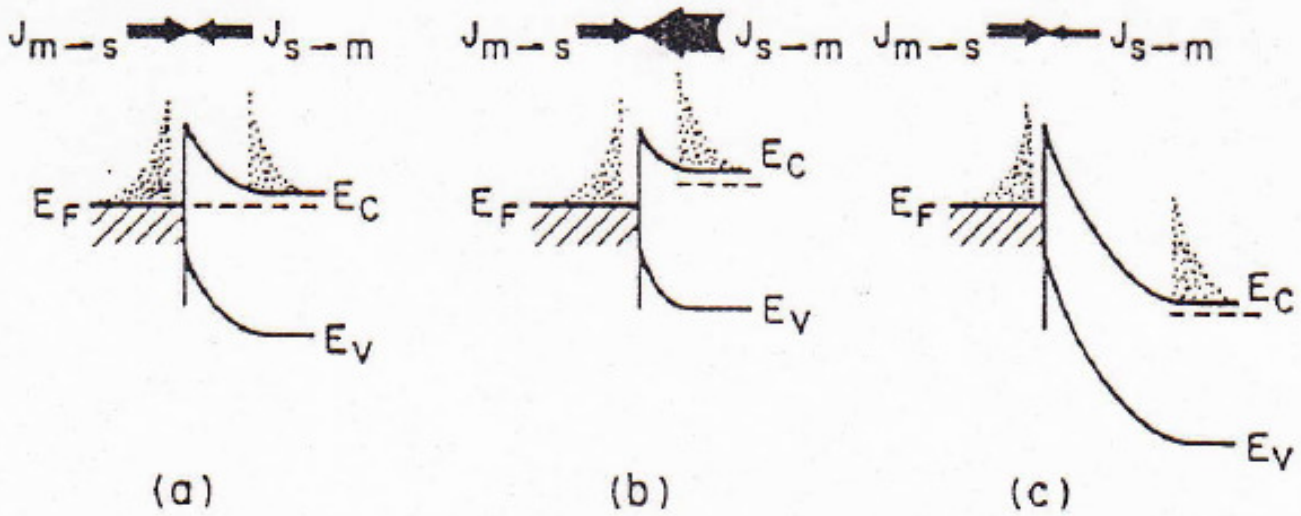


Fig. 6 Current transport by the thermionic emission process. (*a*) Thermal equilibrium. (*b*) Forward bias. (*c*) Reverse bias.[4]

Corrente termoionica

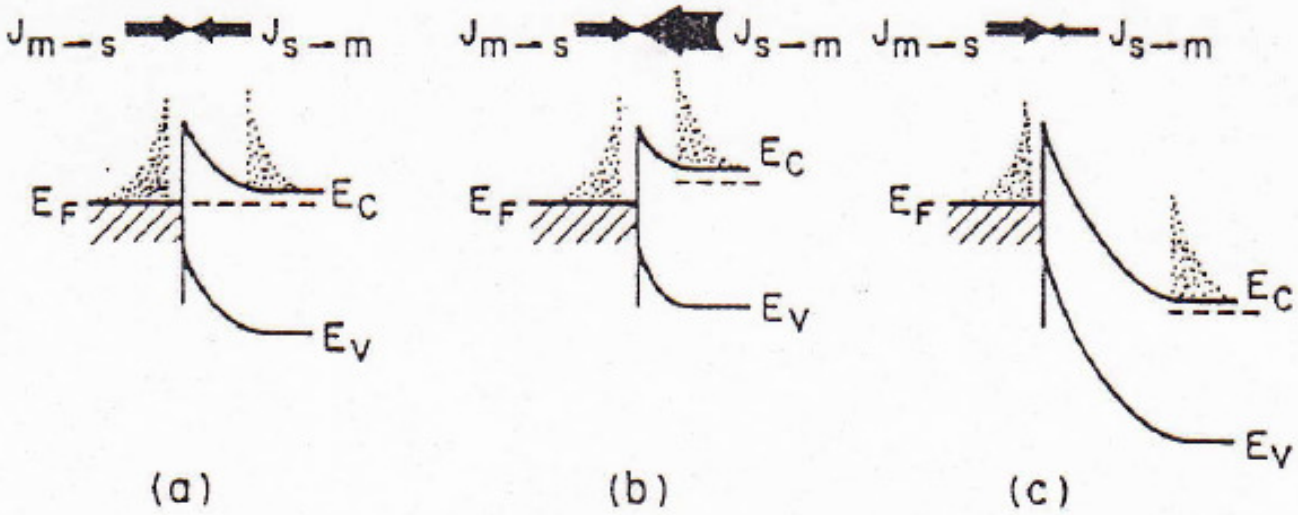
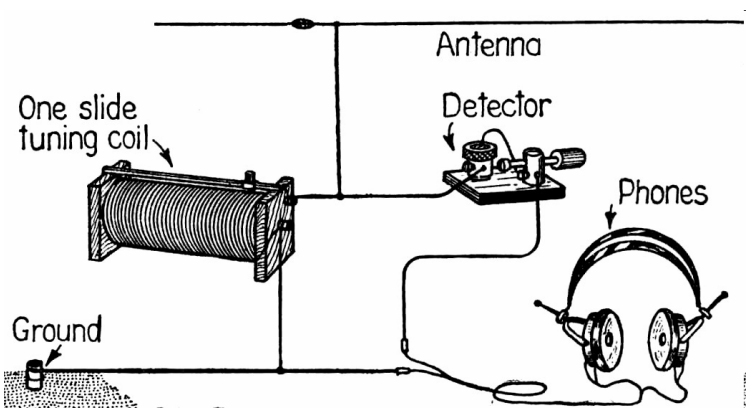


Fig. 6 Current transport by the thermionic emission process. (*a*) Thermal equilibrium. (*b*) Forward bias. (*c*) Reverse bias.[4]

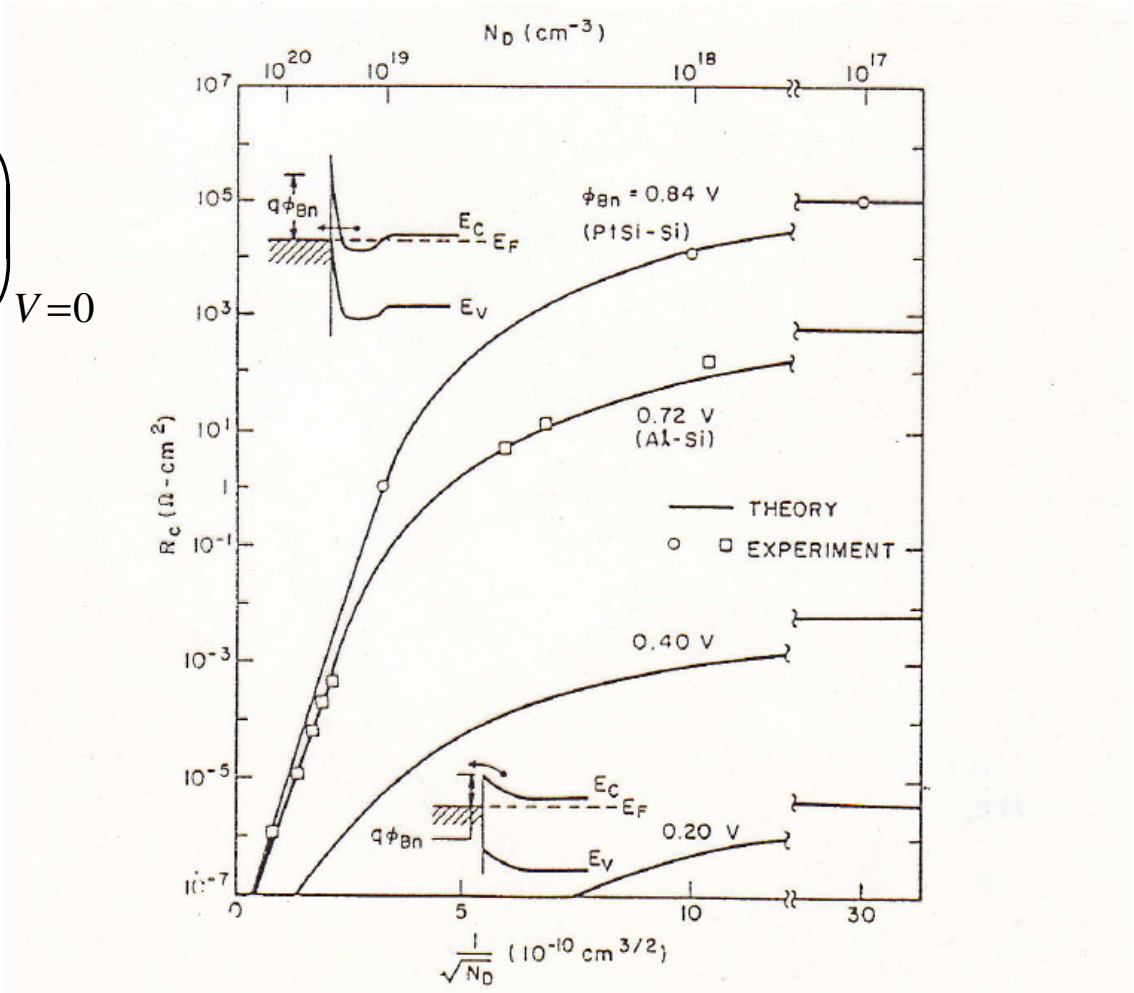
$$J = AT^2 \exp\left\{-\frac{q\Phi_B}{KT}\right\}\left(\exp\left\{\frac{qV}{KT}\right\}-1\right)$$

Cat whisker radio



Contatti Ohmici

$$R_C^{-1} = \left(\frac{\partial I}{\partial V} \right)_{V=0}$$



. 8 Calculated and measured values of specific contact resistance. Upper insert ws the tunneling process. Lower insert shows thermionic emission over the low barrier.

Contatti Ohmici: deposizione eutettica

Una **miscela eutettica** (dal greco *eu* = buono, facile; *tettico* = da fondere) è una miscela di sostanze il cui punto di fusioneè più basso di quello delle singole sostanze che la compongono (da cui il nome "facile da fondere").

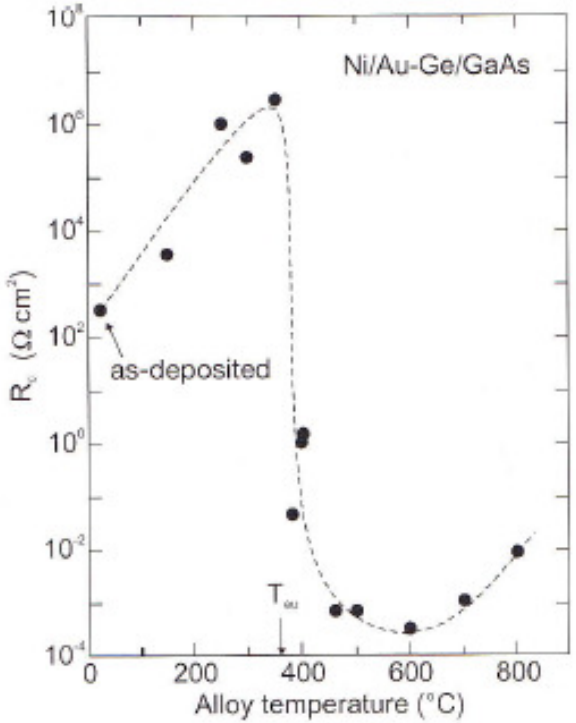


Fig. 18.20. Specific contact resistance for Ni/Au-Ge on n-type epitaxial GaAs for varying alloying temperatures (2 min). *Arrow* at T_{eu} denotes the eutectic temperature of Au-Ge. Adapted from [572]

Contatti Ohmici

Material	Contact materials
Si	Al, Al-Si, $TiSi_2$, TiN, W, $MoSi_2$, PtSi, $CoSi_2$, WSi_2
Ge	In, AuGa, AuSb
GaAs	AuGe, PdGe, Ti/Pt/Au
GaN	Ti/Al/Ti/Au, Pd/Au
InSb	In
ZnO	$InSnO_2$, Al
$CuIn_{1-x}Ga_xSe_2$	Mo, $InSnO_2$
HgCdTe	In