



Figure 3.A.5

(B)

observation of supercurrents of $2e$ carriers (Josephson effect) between two weakly coupled superconductors separated by a barrier (which allows essentially for single normal electron tunneling) with a probability

single Cooper pair tunneling between members of a pairing rotational band fulfilling

$$\frac{\sigma(g_s(N) \rightarrow g_s(N+2))}{\sum_{exc} \sigma(g_s(N) \rightarrow D_{exc}^+(N+2))} \gg 1$$

with probability

$$P_2 \approx P_1 \quad (\sigma_2 \approx \sigma_1)$$

that is, probability for two-particle tunneling about equal than that for one-particle tunneling.

(A)

independent pair motion

$$\xi(\xi/d)$$

$$10^4 \text{ \AA} (10^4) \quad | \quad 14 \text{ fm} (4)$$

number of overlapping Cooper pairs

$$10^6 \quad | \quad 6$$

$$\Delta(\Delta/E_F)$$

$$\approx 1 \text{ meV} (10^{-4}) \quad | \quad \approx 1.4 \text{ MeV} (10^{-2})$$

generalized quantality parameter

$$q\xi = \frac{\hbar^2}{2m\xi^2} \frac{1}{2\Delta}$$