

MODIFICATION OF THE THEORY
OF ONE-DIMENSIONAL MOBILITY DUE
TO SCATTERING BY A DISORDERED ALLOY

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S u m m a r y

Analytic expressions are derived for the electron mobility and relaxation rate in a rectangular quantum wire for the scattering by a disordered alloy. The dependence of the electron mobility on temperature and a transverse dimension is numerically evaluated. It is found that the mobility increases continuously, because no new intersubband scattering contributes. It is shown that the alternate increase and decrease of the mobility depending on the transverse dimension of a quantum wire occur due to intersubband scattering.