

(1)

ABSTRACT : The high energy behaviour of the integrated density of states (i.d.s.) for the spectrum of $H = -d^2/dx^2 + V(x)$ is studied. The potential, V , is assumed to be almost periodic, though the analysis applies equally well to other potentials that are adequately well-behaved. The analysis of [1] is extended and the next two terms in the expansion of the i.d.s. in powers of $1/E^{1/2}$ are obtained. To order $o(E^{-5/2})$, the i.d.s., $k(E)$, is shown to be

$$\frac{1}{\pi} \left[K - \frac{1}{2K} \text{Exp}(V(0)) - \frac{1}{8K^3} \text{Exp}(V(0)^2) + \frac{1}{32K^5} \cdot \text{Exp}(-2V(0)^3 + 3V''(0)V(0) + 2V'(0)^2) \right]$$

A general prescription for obtaining higher terms is evident from the analysis.