

Slow electrons in a Polar Crystals

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STATEMENT OF THE PROBLEM

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$$H = \frac{1}{2}P^2 + \sum_K a_K + a_K + i(\sqrt{2}\pi\alpha/V)^{\frac{1}{2}} \sum_K \frac{1}{K} X[a_K + \exp(-i\mathbf{K} \cdot \mathbf{X}) - a_K \exp(i\mathbf{K} \cdot \mathbf{X})]. \quad (1)$$

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$$\alpha = \frac{1}{2} \left(\frac{1}{\epsilon_\infty} - \frac{1}{\epsilon} \right) \frac{e^2}{\hbar\omega} \left(\frac{2m\omega}{\hbar} \right)^{\frac{1}{2}},$$

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$$i\partial\psi/\partial t = H\psi, \quad (2)$$

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$$H\varphi_n = E_n\varphi_n, \quad (3)$$

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$$\psi = \sum_n C_n \varphi_n e^{-iE_n t}.$$

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$$S' = \frac{1}{2} \int \left(\frac{d\mathbf{X}}{dt} \right)^2 dt + 2^{-\frac{3}{2}} \alpha i \int \int |\mathbf{X}_t - \mathbf{X}_s|^{-1} e^{-i|t-s|} dt ds. \quad (4)$$

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$$\partial\psi/\partial t = -H\psi, \quad (5)$$

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