

$$dW_c/d\xi + dW_F^I/d\xi + dW_F^{II}/d\xi = 0 \quad (6)$$

$$d^2W_c/d\xi^2 + d^2W_F^I/d\xi^2 + d^2W_F^{II}/d\xi^2 = C_H \quad (7)$$

$$d^2W_c/d\eta^2 + d^2W_F^I/d\eta^2 + d^2W_F^{II}/d\eta^2 = C_{66} \quad (8)$$

The density of states at the Fermi level may be calculated from measurements of the electronic specific heat. The data reported by Clement⁽²⁰⁾, gives the total density of states per unit energy range at the Fermi level as $N_f = 8.73 \times 10^{33} \text{ erg}^{-1} \text{ cm}^{-3}$.

In order to explore for solutions, Equations 6, 7 and 8 can be graphed with the free parameters Z^2 and α_0 as coordinates. In this form the slopes of the lines are the ratio of the numerical coefficient of α_0 to the coefficient of Z^2 (Table 3), and the Z^2 intercepts are related to the appropriate derivative of W_F^{II} (a function of n_i , N_i , E_i). Values of the n_i and E_i were first estimated from free electron theory (the n_i then automatically complying with Equation 4) and reasonable values of the N_i that satisfy Equation 5 were chosen. This graph is shown in Fig. 3 and the lack of intersections demonstrates the unavailability of simultaneous solutions for the three equations with a physically possible value of Z^2 .