On the Order Dependence of The Thermoelectric Power of Binary Alloys

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We present a simple model for calculating the order dependent part of the thermoelectric power of binary alloys.

Resistivity Anomalies for Ferromagnetic Metals at Curie Point

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We have investigated the resistivity anomalies of ferromagnetic metals near the Curie temperature T_c using the itinerant model of magnetic electrons. Current theory describing these anomalies is based on the localized model of magnetic electrons in ferromagnetic metals. We use the itinerant model to treat the spin correlation function. Using the second quantization techniques of field theory, the correlation function is found. Thence, the scattering cross section is obtained. The relaxation time and the resistivity are calculated for both the paramagnetic and the ferromagnetic regions. The temperature derivatives of the resistivity are then derived for temperatures approaching the Curie temperature from both below and above. Our results are positive infinite for T approaching T_c from below and negative infinite for T approaching T_c from above.

Temperature Distribution in a Cracked Stripe

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Temperature distribution along a cracked stripe is solved analytically by means of Laplace transform. In quasi-steady state approximation, it is shown that there exists no localization temperature in a good conducting stripe such as Al, with or without a crack, but with a well peaked localization temperature in the case of a cracked poor conducting stripe. This apparent discrepancy can be explained easily in terms of thermal conduction of the stripe in question.