SEMINAR NOTICE

High Resistivity in Metals

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Abstract

Metals conduct electricity. Ohm's law describes this conduction. After some talk about what 'law' means here, and the peculiar implication of Ohm's law, I go into numbers. What typically is the resistivity of a metal and why? Is there a limit to it? Surprisingly, it seemed experimentally for a long time that there is. This limit is associated with Mott, and is called the Mott minimum metallic conductivity (or maximum metallic resistivity). In the last several years specially, gross violations of this Mott limit have been seen, mostly at high temperatures (the resistivity seems to increase linearly with temperature, upto rather high temperatures) , and mostly in systems in which electrons move about not quite freely but strongly avoiding each other. I will give some examples of this, and will mention a few theoretical jabs at the problem. It promises to be an interesting question, illustrating the truism that 'the resistivity of a metal is the first (property) to be measured but the last to be understood'.