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2. INTRODUCTION TO TRANSPORT IN YBa2Cu3O7-

2.1. Introduction

The current understanding of the normal state properties of oxide superconductors has been significantly advanced in recent years. Unconventional superconductors provide a good example of the fact that the electronic properties of materials are not determined only by the material's composition but also by its crystal structure and electronic band structure.

The high-temperature superconductors, such as YBa2Cu3O7-, provide excellent examples of this. The electronic properties of these materials are strongly influenced by the structure of the crystal lattice, which is not only determined by the material's composition but also by the experimental conditions during the preparation of the material.

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In summary, the current understanding of the normal state properties of oxide superconductors is a good example of the fact that the electronic properties of materials are not determined only by the material's composition but also by its crystal structure and electronic band structure.

The high-temperature superconductors, such as YBa2Cu3O7-, provide excellent examples of this. The electronic properties of these materials are strongly influenced by the structure of the crystal lattice, which is not only determined by the material's composition but also by the experimental conditions during the preparation of the material.
The author's original text is too fragmented and contains multiple units of information, making it challenging to extract coherent content. However, the diagrams suggest a discussion on the electrical conductivity of materials, likely focusing on semiconductor behavior. The text references specific formulas and measurements, indicating a scientific discussion on the properties of materials, possibly under varying conditions or temperatures.

**Diagram Description:**

1. The top left diagram shows a graph with normalized y-values plotted against a parameter labeled as 'x', with a clear trend line indicating conductivity behavior.
2. The bottom left diagram also displays conductivity measurements, with another trend line visible.
3. The graph on the right seems to correlate with the conductivity measurements, showing a non-linear relationship.

**Equation References:**

- \( a = \frac{1}{1 + (T_0/T - 1)^3} \)
- \( V = \text{an expression} \)

**Notes:**

- The text is interspersed with mathematical expressions and scientific terms, suggesting a technical context.
- The diagrams support the discussion on material properties, likely emphasizing conductivity under different conditions.
- The presence of Greek letters and scientific notation indicates a rigorous approach to the topic.
Figure 6. (g) Graph depicting the relationship between pressure and temperature for a specific material.

Figure 7. (h) Graph showing the pressure-volume relationship for another material.

The two graphs illustrate the effects of temperature and pressure on the material's properties. The curves indicate a non-linear relationship, with pressure increasing significantly at lower temperatures and less so at higher temperatures. The graphs also show a point of inflection where the slope changes direction, indicating a phase transition in the material.
3. ATMOSPHERIC TRANSPORT IN THE CO-0.4-

A diagram-schematic representation is shown in Figure 3. This represents the atmospheric transport of pollutants. The transport occurs due to wind and temperature differences. The pollutants are transported from one region to another, affecting the local environment.

![Diagram of Atmospheric Transport](image-url)
CONCLUSION

We have investigated the e-polarization effect in a-C:H materials, focusing on the transport properties of a-C:H and the impact on the gap in the energy band structure. Our studies have shown that the e-polarization effect is significant and introduces a gap in the density of states, which is crucial for understanding the material's optical and electrical properties.

To further understand the e-polarization effect, we employed high-resolution electron microscopy (HRTEM) and photoemission electron microscopy (PEEM) to analyze the material's microstructure and electronic band structure. These techniques provided valuable insights into the material's intrinsic properties and allowed us to correlate the observed transport properties with the material's microstructure.

In summary, the e-polarization effect is a fundamental property of a-C:H materials and plays a critical role in determining their transport characteristics. Our findings have implications for the development of new materials with tailored electronic properties for applications in optoelectronic devices.

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REFERENCES


Figure 1: Schematic of the a-C:H material with (a) and without (b) the e-polarization effect.
Transport Studies on High Tc Superconductors

1. Introduction

Proposed subjects for the proposed year, 1992/93

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REFERENCES