

Title	1. Effects of Impurity Atoms on the Stage II_C Recovery of the Electrical Resistivity in Deformed Aluminum
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- |   |         |
|---|---------|
| 1. 正方格子金属表面の再構成について   | 今 泉 栄 亀 |
| 2. CsCl 型合金 $\text{CoTi}_{1-y}\text{Ga}_y$ における磁気モーメントの発生機構 | 大 岩 潔   |
| 3. 縦横励起子エネルギー差の誘電関数による考察                                    | 押 切 利 宏 |
| 4. 筋肉の細いフィラメントのX線構造解析                                       | 神 谷 潔   |
| 5. トランスバースエレクトロンフォーカシング効果による<br>亜鉛単結晶の鏡面反射係数の測定             | 木 村 文 雄 |
| 6. 高分子濃厚系の分子変形  | 関 谷 光 信 |
| 7. 高純度銅単結晶の輸送係数に於ける低磁場 size 効果                              | 福 原 政 文 |

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|---|-----------------|
| 1. Effects of Impurity Atoms on the Stage $\text{II}_c$ Recovery of the Electrical Resistivity on Deformed Aluminum | Yasukazu OHTANI |
| 2. The Electrical Resistivity of Quenched Beta-Brass  | Masaaki IIDA    |
| 3. Quantum Size Effect of the Electric Resistivity on Bismuth Films   | Toshio YOKOKAWA |

1. Effects of Impurity Atoms on the Stage  $\text{II}_c$  Recovery of the Electrical Resistivity in Deformed Aluminum

Yasukazu OHTANI

The interaction of migrating defects with impurities has been investigated by electrical

resistivity measurements using cold worked polycrystalline 5-nine Al and dilute Al alloys with Ag, Mg, Ge, Ti, Cu and Si. In the initial recovery stage, up to about 50 K, there is no remarkable difference in the recovery rates between alloys and pure Al. The following recovery stage, so-called stage II<sub>C</sub>, is affected significantly by existence of impurities. The suppressive effect of impurities on migrating defects depends on the kind of impurity elements and is in the order, Ge>Si>Cu>Ag>Mg. By comparison this effect with that of impurities for self-interstitial atoms and for vacancies, respectively, it finds that the effect for migrating defects in stage II<sub>C</sub> agrees with that for vacancies. It is therefore considered that the recovery in stage II<sub>C</sub> in deformed Al is due to the migration of di-vacancy.

## 2. The Electrical Resistivity of Quenched Beta-brass

Masaaki IIDA

The electrical resistivity change in quenched beta-brass during isochronal annealing was examined by use of the ordinary bridge circuit. The reverse recovery appears at the temperature ranging from 100 to 150 °C. This reverse recovery is not reported yet and is considered to be responsible for a behavior of vacancies emitted from dislocation loops in the quenched specimen. Their behavior is investigated by Monte Carlo simulation and it is suggested that the life time of these vacancies until to annihilate to sinks, such as zigzag dislocations and large dislocation loops, is much longer in ordered domain than in disordered one. It is also observed by electron microscope that small dislocation loops annihilate and only large ones survive at the temperature range mentioned above.