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<th>著者</th>
<th>永井和彦, 他, 村上善生, 沼上芳生</th>
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Study on Anti-Phase Domains in Cu₃Au by Means of Electron Diffraction and Electron Microscopy*

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Abstract

It has been confirmed by electron diffraction that anti-phase domains in Cu₃Au giving rise to diffuse superlattice reflections grow up during isothermal annealing below the transition temperature of order-disorder, evaporated films of nearly stoichiometric compositions being used. This fact means that anti-phase domains in Cu₃Au are not in an equilibrium state unlike the so-called periodic anti-phase structure.

Electron-microscopic images of domain boundaries of alloy films with 26 atomic per cent gold have been observed. These images also confirm the isothermal growth of domains. The irregular configuration of domain boundaries as observed by Fisher and Marcinkowski in electropolished specimens of Cu₃Au has been confirmed also in the evaporated films. It is concluded, however, that some correction should be made on the domain distribution of Cu₃Au suggested by these authors, on the basis of dark field images of electron micrographs formed by different kinds of superlattice reflection in the present study. The correct distribution is that in which the occupation of nearest neighbor positions by gold atoms is avoided as far as possible.

* The 1075th report of the Research Institute for Iron, Steel and Other Metals. Published in the Journal of the Physical Society of Japan, 17 (1962), 1030.