研究の名: Cu_3Auのアンチフェーズドメインについての電子干渉法および電子顕微鏡法の研究

著者: 山口 昌宏, 和田 丹次郎, 小川 博

誌名: 北海道大学研究報告, 理学部, 物理、化学、金属学

巻号: 14

ページ: 372-372

年: 1962

URL: http://hdl.handle.net/10097/27109
Study on Anti-Phase Domains in Cu₃Au by Means of Electron Diffraction and Electron Microscopy*

Sadae Yamaguchi, Denjiro Watanabe and Shiro Ogawa

The Research Institute for Iron, Steel and Other Metals

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.