

## Anti-Phase Domains in Gold-Copper-Zinc Ordered Alloys Revealed by Electron Microscope

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journal or publication title	Science reports of the Research Institutes, Tohoku University. Ser. A, Physics, chemistry and metallurgy
volume	11
page range	511-511
year	1959
URL	<a href="http://hdl.handle.net/10097/26955">http://hdl.handle.net/10097/26955</a>

the critical point of order-disorder. The present work has elucidated that, in alloys of  $\alpha'$ -phase, the line-up number of anti-phase domains and the degree of order inside domains decrease with increasing temperature in the range of 20~40°C below the critical point, and an abrupt decrease of the line-up number of domains occurs at the critical point. In the range of 100~150°C above the critical point, short chains of one-dimensional anti-phase domains with the same period of out-of-steps as in the ordered state remain randomly in an equilibrium state. On the other hand, anti-phase domains are absent in the alloys of  $\alpha'$ -phase below as well as above the critical point.

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#### Abstract

Using thin evaporated films of gold-copper-zinc ternary ordered alloys, the line-up of anti-phase domains has been observed as parallel lines on transmission electron micrographs of bright field, down to a domain size of about 8Å.

The lattice modulation accompanying anti-phase domains, i.e. the periodic error of lattice spacing or scattering factor with the same period as a domain size, has again been verified to play an important role in forming the satellites around the direct spot on a diffraction pattern, and hence, in forming the parallel lines on electron-microscopic images. Two-thirds of the intensity of the satellites have been estimated in the present alloy films to arise from the modulation, and the rest probably from double diffraction.

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## ERRATA

Vol. 10 (1958), 459: Preparation of Zinc Sulfide Single Crystals

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Photo. 3b and d, which appeared in Page 464 of Volume 10 should be interchanged each other. The explanations are to be kept as they are.

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\* The 962nd report of the Research Institute for Iron, Steel and Other Metals. Published in *Journal of the Physical Society of Japan*, 14 (1959), 936.