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The Intensity of Satellite Reflections in Electron Diffraction
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CuAu II Type Superstructure*

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Abstract

In order to elucidate the origin of satellite reflections flanking the direct spot in the electron diffraction pattern of a single crystal evaporated film with CuAu II type superlattice, the peak as well as integrated intensities have been measured as functions of the wavelength of electrons corresponding to the accelerating voltage from 75 to 280KV. It has been revealed that the intensity of the satellite in question relative to a fundamental reflection consists of two parts, a major part which depends on the wavelength in such a way as predicted by the theory of multiple reflection, and the other minor part which is independent of the wavelength. The existence of the latter part shows that the reflection is not a forbidden one and, therefore, a lattice modulation accompanies the regular anti-phase structure. Fourier potential due to this lattice modulation, V_s , is estimated to be in the order of one tenth the magnitude of V_{400} . Some consideration concerning the nature of the modulation is given by comparing the results of electron and X-ray diffraction studies.

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