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Résumé. — Nous avons étudié l'ordre à courte distance dans un alliage trempé Ni_4Mo.

Abstract. — We have studied Short Range order in quenched Ni_4Mo.

From a detailed electron diffraction study [1] and stereo dark field imaging [2], using the short-range order (SRO) scattering, we have concluded that SRO in this quenched alloy is not of *microdomain* type. Other worker disagree with this [3]. From these results we suggest a tentative model for SRO in Ni_4Mo.

This model is based on a { 1, 1/2, 0 } concentration wave, as proposed by Okamoto and Thomas [1] and by Khachaturyan [2] and de Fontaine [3], from a thermodynamic treatment. We modify the *Static Concentration Wave* (SCW) of these authors by introducing a localised envelope, producing a *Static Concentration Wave Packet* (SCWP). This envelope function is given by the Fourier transform of the profile of the SRO scattering. For a Lorenzian profile of the SRO peaks (as suggested by the de Fontaine [3]), this corresponds to exponential decay of the SCW in real space.

We wish to emphasize that SRO in this alloy is different from that observed in CuPt (e.g. [7]) and it is therefore appropriate to describe SRO in these two alloys in different terms [6] : i.e. the SCWP model for Ni_4Mo and microdomains in CuPt.

Comparison of experimental results, with those expected on the basis of the SCWP model, show good agreement for diffraction and fair, although tentative, agreement with the imaging results. Further work [2] has shown that ageing the quenched alloy at 750 °C and 800 °C leads to the development of LRO through nucleation and growth of domains with the Dla structure.

References

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