TMT 4300 Lys- og elektronmikroskopi

Laboratorieoppgave TEM

Sample: Al-10% Li, annealed for 71 hours at 220 ° C.

Tension tested samples of the same material has been previously investigated in LM and SEM, and it was in both cases, showing a grain bondary fracture.

- 1. Find a grain boundary and examine particle distribution in this region.
- 2. Take the particle distribution images in bright (BF) and dark field (DF). The DF must be taken by using a diffracted spot from the particles.
- 3. Explain the reason that you get to grain boundary fracture by tension test.
- 4. Take a diffraction pattern showing with the selected spot in the above DF image.
- 5. Indexing the matrix Al diffraction pattern.
- 6. Determine the lattice distance for the diffracted spot which was used in the above DF image (particle lattice distance). Lattice parameter of Al is 0.404 nm.
- 7. Determine the particle phase by means of Pearson's Handbook of Crystallographic Data for Intermetallic Phases, vol. 2. (Tip: Ask your tutor for help).