

포스터 B-4

Simple Procedure for Phase Identification Using Convergent Beam Electron Diffraction Pattern

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The combined use of primitive cell volume and zero order Laue zone (ZOLZ) pattern is proposed in this study as a reliable and accurate method of identifying phases in a complex microstructure. Single convergent beam electron pattern containing higher order Laue zone ring from the nanosized region is sufficient in calculating the primitive cell volume of the phase while ZOLZ pattern is used to determine the zone axis of the crystal. A computer program is used to screen out possible phases from the value of measured cell volume by convergent beam electron diffraction (CBED) pattern. Indexing of ZOLZ pattern follows in the program to find the zone axis of the phase. Combination of these two methods ensure accuracy and reliability of phase identification from single CBED pattern. The example of analysis is given from rapidly solidified Al-10wt%Ti system.

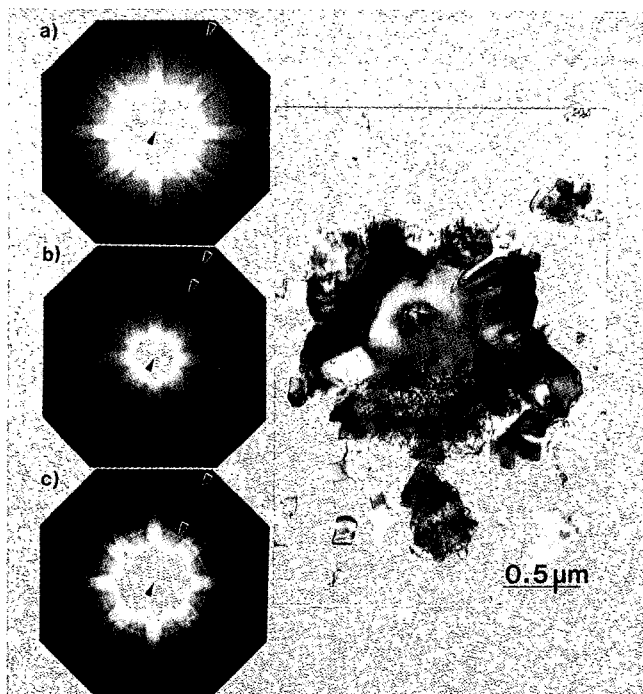


Figure: Convergent beam electron diffraction patterns at [001] zone axis orientation from (a) Al, (b) cubic Al_3Ti and (c) tetragonal Al_3Ti phase