

FIXED DEPTH DIRECTION TEXTURE ANALYSIS USING ENERGY DISPERSIVE X-RAY DIFFRACTION METHOD

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ODF analysis is necessary to examine a condition of texture quantitatively. We generally measure more than two pole figures by angle dispersion method using a characteristic X ray, and use it for ODF analysis. This method, however, doesn't consider X ray penetration depth. Accordingly this method, closely, can't apply the sample of different texture in depth direction. We need to measure pole figures at constant depth not to depend on a measurement angle in like this case.

We were able to measure pole figures at constant depth with the energy dispersion method that used continuation X ray. This method is performed by measurement of diffracted continuous X ray with the aid of a SSD connected to a MCA. The sample is an over 90% rolled aluminum plate. We measured in the depth from the surface to 10 μ m and 30 μ m, and did ODF analysis in each depth. We could observe a difference in crystallite orientation density. Fig.1 is the results of Pole Figures in the depth from the surface to 10 μ m. Fig.2 is the result of the β fiber. Orientation distribution of {123}<634>, S direction, is different 30 μ m from 10 μ m. The sample surface understands that S direction density is high.

Thus we found that we can examine ODF analysis in constant depth by non- destruction by using Energy Dispersive X-ray Diffraction Method.

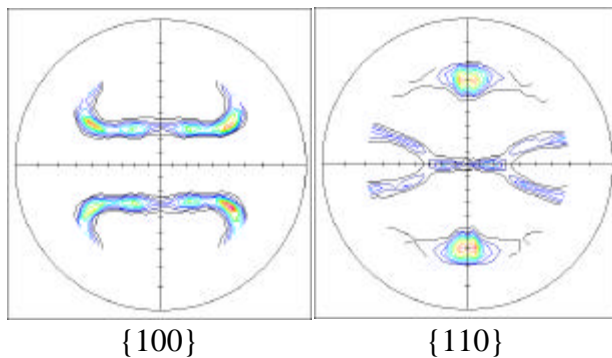


Fig.1 {100} and {110} pole figures in the depth from the surface to 10 μ m

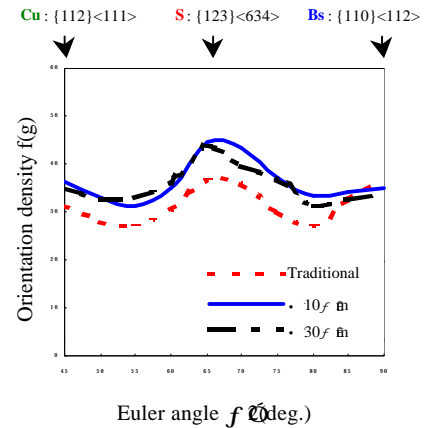


Fig.2 Orientation density along the β -fiber of the texture