

**STUDY ON THE X-RAY DIFFRACTION BEHAVIOR OF A BIG  
CRYSTAL GRAIN IN ORIENTED 3% SILICON STEEL**

Jianfeng Fang, Zhiling Tian, Jing Huo, Jinyuan Zhang, Yi Zhang

Central Iron and Steel Research Institute, Beijing, 100081, P.R. China

In this paper, X-ray diffraction behavior of a big [011] oriented grain (millimeter scale) which deviated from the sample surface by 10.6 degree in oriented 3% silicon steel was studied. The results showed that diffraction from the (011) crystal planes was very strong, if normal of the (011) planes was just on diffraction plane. However, the diffraction intensity of the grain decreased other than vanished, if the normal of the crystal planes deviated from diffraction plane through rotating the sample was around its surface normal. Nevertheless, it was found that the bigger of the deviating angle between the normal of the crystal planes and diffraction plane, the lower of the diffraction intensity from (011) crystal planes of the grain. The diffraction intensity decreased to 53.6 percent and 36.8 percent of the strongest intensity, if the sample was rotated by 10 degree and 15 degree around its surface normal from the position in which the normal of (011) crystal planes was just on the diffraction plane.

## Information Page

I permit to post my abstract on the DXC web site and affiliated web sites.

### Sperker's information

Name: Jianfeng Fang

Mailing address: Central Iron and Steel Research Institute, Powder Metallurgy  
Department, Xueyuan Nanlu No.76, Haidian distract,  
Beijing, 100081, P.R. China

Phone number: 86-010-62182821

Fax number: 86-010-62182821

E-mail address: [jf.fang@263.net](mailto:jf.fang@263.net), [jf-fang@hotmail.com](mailto:jf-fang@hotmail.com)

I prefer to oral presentation in Industrial Application of XRD.

I intend to publish this paper in *Advances in X-ray Analysis*, Volume 52.