

**ABSTRACTS OF PAPERS**  
**Not Published in This Report**

On the Magnetic Anisotropy of a Pyrrhotite Crystal\*

Itsuo MIKAMI, Tokutaro HIRONE, Hiroshi WATANABE, Seijiro MAEDA,  
Kengo ADACHI

*The Research Institute for Iron, Steel and Other Metals*

and Motohiko YAMADA

*Faculty of Liberal Arts and Science, Yamagata University*

**Abstract**

Measurement of the magnetic anisotropy energy of a single crystal of natural pyrrhotite in  $c$ -plane was made by means of the torque method at room temperature up to a magnetic field of 20000 Oe and at low temperature in a constant field. It was found that the easy axis lay along  $[2\bar{1}0]$  direction above  $-80^{\circ}\text{C}$  which, however, changed to  $[100]$  direction below that temperature. The torque curves in  $c$ -plane were composed of two- and six-fold symmetric parts. It was also found that in the range of strong magnetic fields the six-fold symmetric part at room temperature decreased with the inverse square of the applied field; such a field dependence is explained assuming a triad structure for the single crystal of pyrrhotite. A remark is also given on the origin of the two-fold symmetric torque.

---

\* The 968th report of the Research Institute for Iron, Steel and Other Metals. Published in *Journal of the Physical Society of Japan*, **14** (1959), 1568.