

## Study on Formation Mechanism of BIF by Using Synchrotron Radiation X-ray Fluorescence Analyses

# Katsutoshi Fukuda[1], Masaya Matsunaga[2], Yasuhiro Kato[3], Izumi Nakai[4]

[1] Dept. of Appl. Chem., Facul. of Sci., Sci. Univ. of Tokyo, [2] Science, Science Univ. of Tokyo, [3] Earth Sci., Yamaguchi Univ, [4] Dept. of Appl. Chem., Sci. Univ. of Tokyo

<http://www.ch.kagu.sut.ac.jp/OK/nakai/indexj.html>

Synchrotron radiation-induced X-ray fluorescence (SR-XRF) analyses were applied to examine the distributions and chemical forms of titanium in banded iron formation (BIF) samples from Hamersley and Cleaverville, Australia. XRF mapping showed that the layers enriched in titanium were classified into three types according to their chemical compositions. XANES analyses indicated that titanium in the BIFs was in the tetravalent state and that most of the titanium existed as silicates in the BIF whereas some existed as oxides.

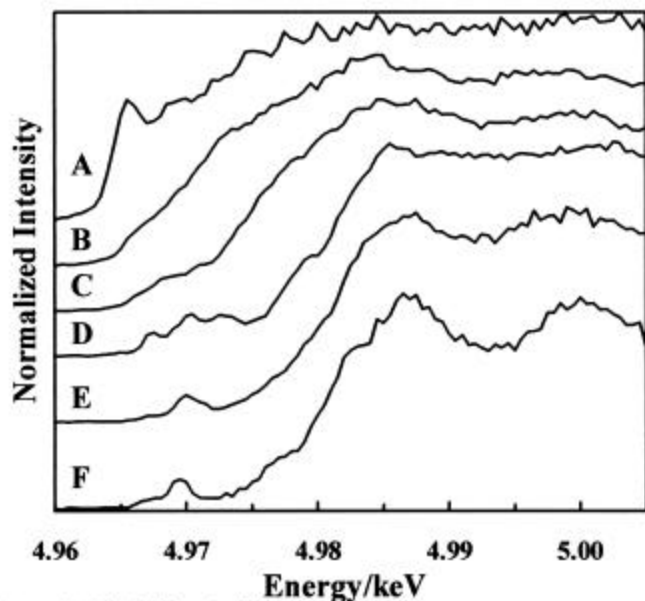


図1 標準試料から得られた Ti K-XANES スペクトル  
(A)Ti metal, (B)TiO, (C)Ti<sub>2</sub>O, (D)Anatase(TiO<sub>2</sub>),  
(E)Titanite, (F)Biotite

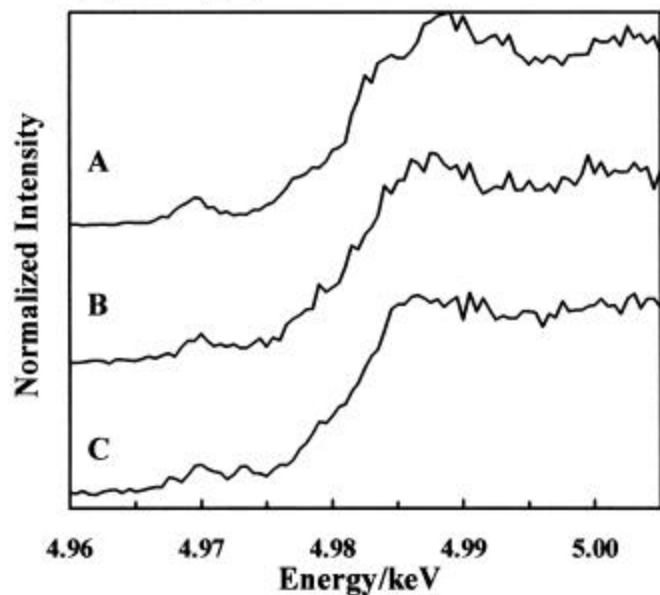


図2 BIFから得られた Ti K-XANES スペクトル  
(A)Ti+Fe 型, (B)Ti 型, (C)Ti+Fe+Ca 型