

## *Supplementary Material*

### **Flux Growth of Single-crystalline Hollandite-type Potassium Ferrotitanate Microrods from KCl Flux**

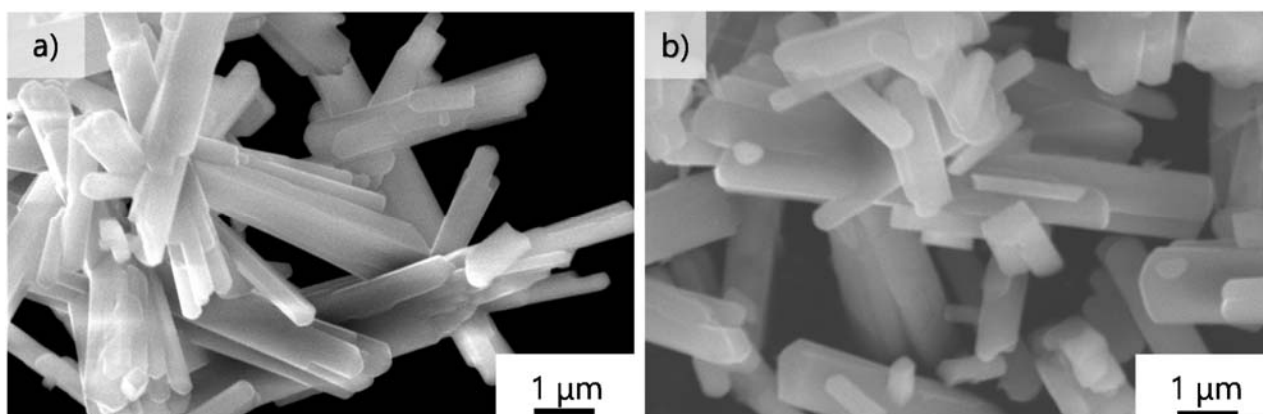
**Fumitaka Hayashi<sup>1</sup>, Kenta Furui<sup>1</sup>, Hiromasa Shiiba<sup>2</sup>, Kunio Yubuta<sup>3</sup>, Tomohito Sudare<sup>2</sup>, Chiaki Terashima<sup>4</sup>, Katsuya Teshima<sup>1,2,4\*</sup>**

<sup>1</sup>Department of Materials Chemistry, Faculty of Engineering, Shinshu University, 4-17-1 Wakasato, Nagano 380-8553, Japan

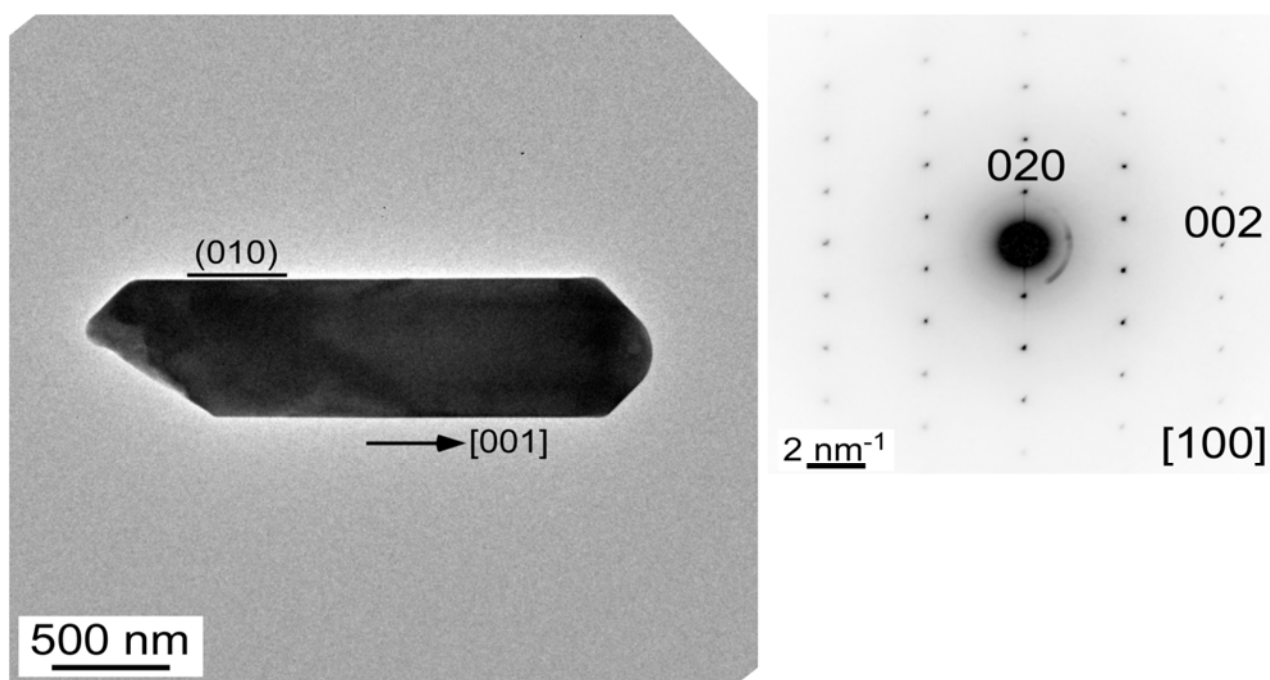
<sup>2</sup>Research Initiative for Super-Materials, Shinshu University Nagano, 4-17-1 Wakasato, Nagano 380-8553, Japan

<sup>3</sup>Institute for Materials Research, Tohoku University, Sendai 980-8577, Japan

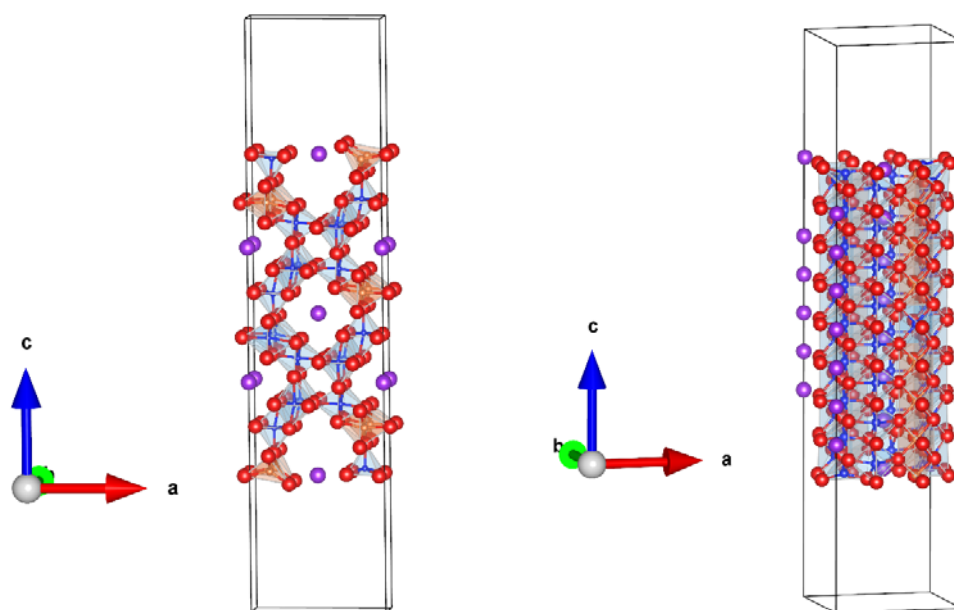
<sup>4</sup>Research Center for Space Colony, Tokyo University of Science, 2641 Yamazaki, Noda, Chiba 278-8510, Japan



**Supplementary Figure 1.** SEM images of KFTO crystals grown with different solute concentrations: (a) 10 and (b) 50 mol %. Flux, KCl; holding temp., 900 °C; holding time, 10 h.



**Supplementary Figure 2.** TEM image and the corresponding SAED pattern of the cross section of a KFTO microrod crystal grown from a KCl flux. Solute concentration, 80 mol %; holding temperature, 900 °C; holding time, 10 h.



**Supplementary Figure 3.** Slab models of KFTO showing the (100) (left) and (001) (right) surfaces. Fe, Ti, K, O, and O atoms are represented by purple, orange, blue, and red spheres, respectively.