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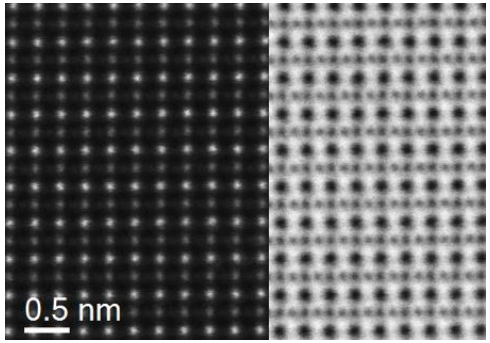
재료 물성의 이해를 위한 최신 투과전자현미경(STEM/EELS)의 기본과 활용

The transmission electron microscope (TEM) is the most powerful analysis tool for materials characterization. In this seminar, I will introduce basic concepts of TEM and how to use TEM for research materials. Especially, the advanced analysis method called "scanning TEM (STEM) and Electron Energy Loss Spectroscopy(EELS) is shown for Basic Science.
Finally, I'll show how this atomic resolution STEM/EELS has been used for oxide materials and new semiconductor materials.

Contents:

1. **Basic of Transmission Electron Microscopy**
2. **Advanced TEM Analysis (Atomic resolution STEM/EELS)**
3. **Applications**
   - **Oxygen position analysis in the perovskite and so on.**
   - **Atomic dynamic studying with STEM image**

$SrTiO_3$ acquired by UltraSTEM HAADF/ABF image →



Nion UltraSTEM200, The only dedicated Cs corrected STEM, Oak Ridge National Lab., STEM Group (2015) →