



## 東京大学微細構造解析プラットフォーム 公開講演会

### **New views of materials in the aberration corrected electron microscope**

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Recent advances in electron optics have pushed the achievable spatial resolution and the sensitivity for imaging and spectroscopy in the electron microscope into the sub-Ångstrom regime. Images now show greatly improved contrast and signal to noise ratio, sufficient to allow sensitivity to light atoms (such as oxygen columns) and even to single atoms in both imaging and spectroscopy. Such levels of both resolution and sensitivity allow to probe the properties of materials with unprecedented detail. This is of the utmost importance in the era of electronics and the emerging field of spintronics, since many of the properties of the materials of interest are dominated by the presence of small active regions, point defects or strains. In this scenario, the combination of atomic-resolution Z-contrast scanning transmission electron microscopy and electron energy loss spectroscopy represents a powerful method to link the atomic and electronic structure to macroscopic properties. This talk will present several examples of atomic resolution studies of the relationship between structure and electronic properties of oxide thin films and interfaces, with complementary density-functional calculations. Examples will include atomic resolution studies of magnetic materials, charge transfer effects across oxide interfaces or the study of magnetic oxide nanoparticles.

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**Main meeting room at Institute of Engineering Innovation**

**工学部総合研究機構 9号館 1階 大会議室**

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