Frontier Chemistry Center
フロンティア化学教育研究センター

講演会

演 題：**Crystallographic and magnetic peculiarities in epitaxial multilayers of magnetically ordered iron-based oxides: Laser MBE growth, synchrotron and neutron studies**

講 師：Dr. Sergey Suturin
Ioffe Physical Technical Institute, St. Petersburg Russia

日 時：2018 年 11 月 13 日（火）15:00~17:00

場 所：フロンティア応用科学研究棟 2 階
セミナー室 2

要旨：Oxide materials exhibiting unique combinations of magnetic, insulating and microwave properties are very attractive nowadays to be used as building blocks for novel spintronic and magnonic applications. Described in this talk will be our recent laboratory and synchrotron studies of crystal structure, magnetic and microwave properties of epitaxial multilayers based on magnetically ordered iron-containing oxides. These include yttrium iron garnet (YIG, $Y_3Fe_5O_{12}$) which is famous for its microwave applications and exotic multiferroic epsilon ferrite (ϵ-Fe_2O_3) featuring an extremely high magnetocrystalline anisotropy. Our group in Ioffe Institute has developed an expertise in fabrication of high quality oxide films by means of Laser Molecular Beam Epitaxy empowered by a number of unique and sophisticated growth-stage auxiliary techniques to gain high performance in-situ characterization of the epitaxial process. Described in this talk will be the advantages of real time 3D reciprocal space mapping by high energy electron diffraction (3D RHEED) and plume spectroscopy. Further on, the peculiarities of the crystal and magnetic structure of the fabricated iron-based oxide films will be discussed based on the results of our synchrotron (XRD, XRR, XMCD and XRMR) and neutron (PNR) studies. The role of structurally and magnetically different interface layers and their influence onto magnetostatic and microwave properties of nanoscale epitaxial films will be addressed.

本講演は、大学院総合化学院『化学研究先端講義（修士課程選択科目）／総合化学特別研究第二（博士後期課程選択科目）』の一部として認定されています。

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