

# Magnetic structure of magnetic thin films observed by polarized neutron reflectivity

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All materials in this world have interfaces and/or surfaces. As Wolfgang Ernst Pauli said, "God made solids, but surfaces were the work of the devil", interfaces are interesting. Especially, magnetic thin films/artificial lattices have been widely treated from basic science, spintronics materials and real devices, because they show characteristic properties different from bulk magnetic materials. Polarized neutron reflectivity method is a non-destructive method to evaluate the magnetic structure of interfaces, and the polarized neutron reflectivity beamline SHARAKU has been used for various magnetic thin films.

In this presentation, I will introduce some previous researches of magnetic thin films -- for example, magnetic structure of Fe<sub>3</sub>Si/FeSi<sub>2</sub> superlattice and magnetic multilayer with quasi antiferromagnetic layer<sup>1</sup>. In addition, I will also talk about the future plans for upgrading this beamline.

[1] Y. Zhong *et al.*, AIP Advances 10, 015323 (2020).

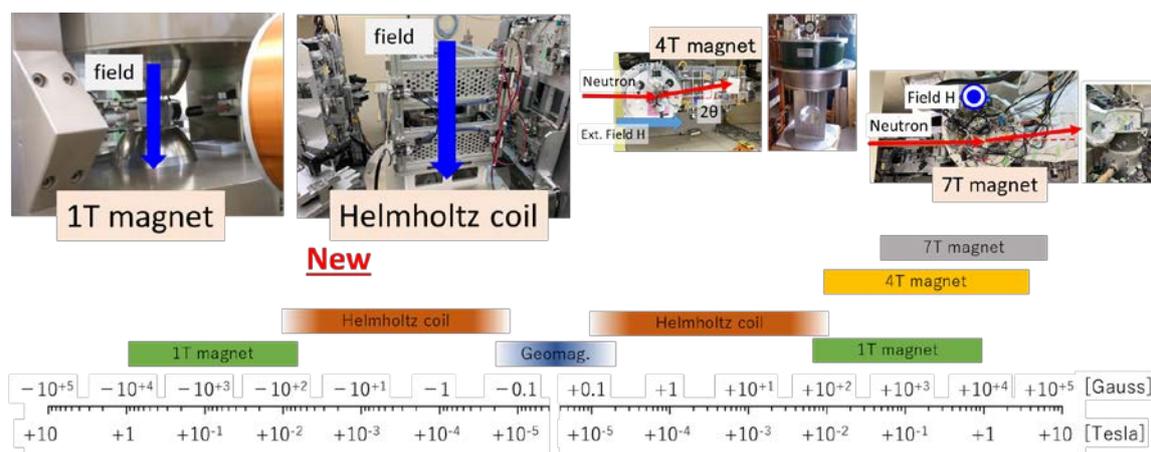


Fig 1. Various magnets available with polarized neutron reflectivity in beamline SHARAKU