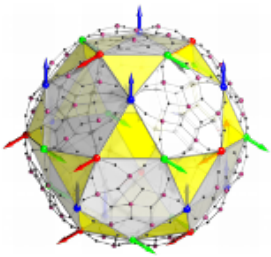

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# Polarized Neutron Reflectometry on superconducting/ferromagnetic superlattices

*Wednesday, 5 June 2019 12:00 (30 minutes)*

Artificial heterostructures with alternating superconducting (S) and ferromagnetic (F) layers are currently attracting great attention due to a diverse set of proximity effects, including $\pi$-phase superconductivity and triplet pairing [1]. The ability to control magnetic state by superconductivity is attracting attention in applied research on superconducting spintronics [2] including such new approaches as neuromorphic computing [3]. At the moment most research efforts are focused on simple S/F structures such as bi- and trilayers. However, both superconducting and magnetic properties of more complex S/F systems, such as $[S/F]_n$ superlattices, may qualitatively differ from the properties of their S/F unit cells thus opening up perspectives for novel functionalities. Tuning of parameters of such S/F "metamaterials"is a complicated task which requires involving many methods.
PNR is an effective method allowing for depth-resolved study of vector magnetic state of S/F heterostructures and its change due to proximity effects. In this talk we will discuss our recent results on magnetic proximity effect in Gd/Nb [4] and design of spin-valve based on Co/Nb [5] superlattices.

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**Primary author:** KHAYDUKOV, Yury (Max-Planck Institute for Solid State Research)

**Presenter:** KHAYDUKOV, Yury (Max-Planck Institute for Solid State Research)

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