

# STUDY OF INTERFACIAL STRUCTURE OF Au/Ni MULTILAYERS BY DIFFUSE X-RAY SCATTERING

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Au/Ni multilayers were grown by Molecular Beam Epitaxy (M.B.E.) on a Cu buffer (500 Å thick) deposited on (100) Si substrate (100 µm thick) [1].

Magnetic properties of these multilayers have been studied by neutron reflectivity measurements. We have deduced a decreasing of the mean magnetic moment per atom of Ni versus the Ni layer thickness. The depression of this moment can be due to an intermixing effect between Au and Ni layers. Large angle X-ray diffraction measurements seem to suit with this hypothesis.

In order to determine statistical parameters of interfacial roughness, we have used the scattering geometry of grazing incidence angles. Diffuse scattering measurements have been carried out by means of synchrotron radiation source of the LURE in Paris. We have applied the goniometer to work out of the plane of incidence. Only this technique allows for the full range of parallel momentum transfer necessary to determine the height-height self- and cross-correlation functions of the rough interfaces [2]. The results are compared for the different samples and discussed in view of the deposition parameters.

## References

[1] S. Labat et al., Journal de Physique IV, C7-135 (1996)

[2] T. Salditt et al., Phys.Rev. B **54**, 5860 (1996)