

## **Angular fluorescence distribution emitted by a metallic component in a periodic multilayer under grazing X-ray radiation**

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The angular dependence of the intensity of the Fe  $K\alpha$  fluorescence radiation emitted from a periodic Fe/C multilayer has been measured with a classical X-ray diffractometer setting using the Cu  $K\alpha$  radiation for sample irradiation. The Fe  $K\alpha$  fluorescence intensity is shown to be highly dependent of the incidence angle of the primary monochromatic X-ray beam in the vicinity of the first order Bragg angle of the multilayer. This intensity variation is related to the displacement of the quasi-stationary primary wave field inside the multilayer as a function of the grazing incidence angle.

After a modelisation of the intensity distribution, a detailed analysis of the experimental curves allows to obtain separately the interface layer thicknesses of the two types of interfaces in the multilayer, respectively Fe/C and C/Fe, which is not obvious when using only grazing X-ray reflectometry analysis [1].

We shall also give first results of others experiments made at LURE (DCI), in order to study the fluorescence of materials which require higher energy radiation to be excited.

[1] F Bridou, JP Chauvineau, A Mirone

Etude de la fluorescence du fer dans une multicouche périodique Fe/C éclairée sous incidence rasante par un faisceau de rayons X monochromatique.

Journal de Physique IV, 1998, Vol 8, Iss P5, pp 309-316.