ESRF	**Experiment title:** Hybridization effects in intermetallic Uranium compounds	**Experiment number:** HE-124
Beamline:	**Date of experiment:** from: 29 January to: 2 February 1997	**Date of report:** 25 /02/97
Shifts: 15	**Local contact(s):** A. Rogalev /J. Goulon	*Received at ESRF:* 28 FEV. 1997

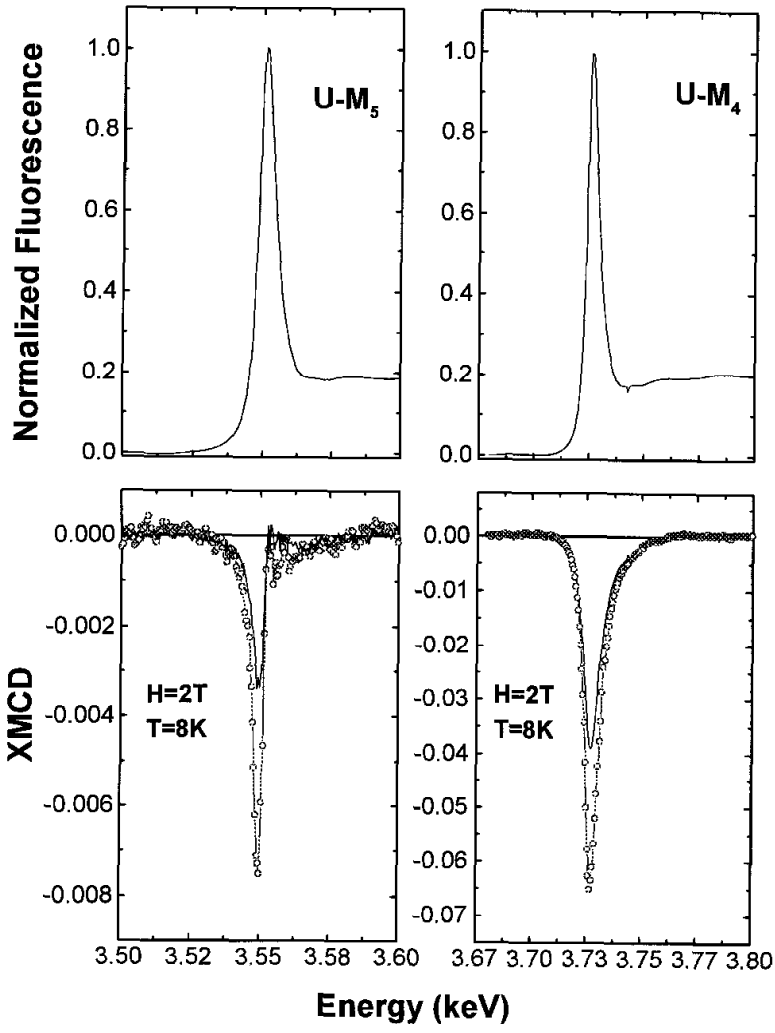
Names and affiliations of applicants (* indicates experimentalists):

J.P. Kappler * IPCMS-GEMME, Strasbourg
W. Grange * IPCMS-GEMME, Strasbourg
M. Finazzi * ESRF
A. Rogalev ESRF
J. Goulon ESRF
Ph. Sainctavit * LPCP, Paris
G. Krill * LURE, Orsay
J.P. Sanchez DRFMC/SPSMS, Grenoble

In this report, we present preliminary results concerning our experiments devoted to the study of magnetism in ternary compounds with general composition UTX, where T is a transition metal and X a p-element: X-Ray Magnetic Circular dichroism measurements were performed at the U-$M_{4,5}$ edges of UCoAl (polycrystal sample) and URhAl (single crystal) at the beamline 6, which is dedicated to polarization XFAS studies.

The high flux of polarized photons from the helical ondulator HELIOS-II allowed us to measure weak signals (within 0.5% at the U-M_5 edge) with very high precision. This was an essential condition, since the lineshape of the XMCD signal is directly related to the degree of localisation of the 5*f*-shell.

Among our interest in the understanding of hybridization effects, we have also carried out XMCD angle dependent measurements in order to study the anisotropy of the orbital moment: the URhAl compound, which crystallizes in the hexagonal ZrNiAl structure and becomes ferromagnetic below 35K, was a promising candidate since bulk measurements have shown that it has a remarkably high uniaxial anisotropy, with the easy axis along the hexagonal **c** direction (see figure on the following page).



Upper panel: U-$M_{4,5}$ edges of single crystal URhAl measured in Fluorescence Yield Detection (not corrected for saturation effects). The curves represent the isotropic spectra (i.e. unpolarised light).

Lower panel: XMCD signals (the polarisation rate which is about 35% at the M_5 edge and 45% at the M_4 edge has not been taking into account) measured at two different angles (θ=30°: solid line, θ=60°: open circles, where θ denotes the angle between the c axis and the direction of the applied magnetic field). The experiments were carried out under 2T at 8K. Note that in our experimental setup, the applied field was collinear with the direction of the incoming light.