

Preliminary report, Experiment HS1120:” **Origin of the deviation from Vegard’s law in wide gap II-VI alloys**”

The experiment involves the study of  $Zn(1-x)Mg_xSe$  semiconductor alloys grown on GaAs substrate. The XAFS measurements were performed in two runs (13-17 April 2000, 13-14 November 2000) at the Gilda beamline of ESRF synchrotron by fluorescence yield detection. The aims of the experiment were:

- 1- To have a direct experimental detection of the interatomic distances inside this material never measured by XAFS before.
- 2- To use the local information gained in order to clarify the macroscopic structural behaviour such as Vegard’s rule deviation that is still under debate in literature.
- 3- To detect possible ordering phenomena due to the not complete miscibility in the whole composition range of the Mg in ZnSe by means of the study of second shell signals.

Good quality XAFS spectra were recorded during the 2 runs both at the Zn and Se absorption edges (see Figs bellow). Work is in progress in order to perform a complete analysis of the data.

