



| | | |
|---|---|--|
| Experiment title: Folding/Unfolding transition of proteins by XANES and EXAFS time resolved experiment | Experiment number: LS-470 | |
| Beamline: ID-24 | Date of experiment: from: 16/10/96 to: 24/10/96 | Date of report: 28/02/97 |
| Shifts: 21 | Local contact(s): M. Hagelstein | <i>Received at ESRF:</i> 04 MAR 1997 |

Names and affiliations of applicants (* indicates experimentalists):

Bianconi Antonio *
Congiu Castellano Agostina
Arcovito Alessandro *
Natali Francesca *

Report:

In the experimental run for time resolved XANES spectroscopy in dispersive mode on the beam line ID24 we have installed an Helium closed cycle cryostat, a Nd-Yag laser that we have brought from Rome University. With the help of the beamline staff we have realized a triggering system connecting our photodiode with the starting of the acquiring system. We have obtained a complete control of the time sequence between consecutive laser shots reaching a time scale of 50 ms between two different spectra acquired. The temperature controller permits us to program different cooling and warming rate covering a temperature range from 20K to 300K.

The difference signal between the excited state and the relaxed one has been of the same order of the intrinsic noise of the beam. Trying to overcome this problem the scientific staff has changed the setup of the line passing from the Laue mode to the Bragg mode while we have modified the frequency of the laser pulse so that the time scale between two different spectra acquired has become 10 ms. These efforts have permitted us to record a difference spectrum between the sample of MbCO and the sample in the Deoxy form (without the ligand CO molecule) further work is necessary to improve the signal to noise ratio to study the weak signals characteristic of biological systems.