Abstract No. maro338

Biological Metal Clusters: Biophysical and Model Studies

M. Maroney (U. Of Massachusetts), R. Sauer (MIT), F. Al-Mjeni (U. Of Massachusetts), P. Chivers (MIT), P. Bryngelson and P. Carrington (U. Of Massachusetts)

Beamline(s): X9B

ABSTRACT: NikR is a DNA binding protein that also binds one Ni atom tightly. It serves to repress the transcription of the gene for the Ni-specific uptake system (Nik A –E) in *E. coli.* Ni K-edge XAS has been used to characterize the Ni binding site in the absence of DNA. Preliminary results show that the Ni site has four-coordinate planar geometry and is composed of O/N-donor ligands. Multiple scattering analysis shows that at least one histidine imidazole is a Ni ligand. Changes in the UV-vis spectrum of features that are sensitive to the presence of Ni indicate that binding DNA changes the Ni structure. Experiments are planned to examine the structure of the Ni site in the C-terminal domain and in the DNA complex using Ni K-edge XAS.