

## Cu reduction in X-ray absorption spectroscopy experiments

I will show, in the exemplary case of the amyloid- $\beta$  peptide in complex with Cu(II), that at the current low temperatures employed in XAS experiments, the time needed for collecting a good quality XAS spectrum is significantly shorter than the time after which structural damage becomes appreciable.

The analysis I will present takes advantage of the well-known circumstance that the transition of Cu from the oxidized to the reduced form under ionizing radiation can be quantified by monitoring a characteristic peak in the pre-edge region.

I will show that there is a sufficiently large time window in which “good” XAS spectra can be acquired before the structure around the oxidized Cu(II) ion reorganizes itself into the reduced Cu(I) “resting” structure.

The consequence of this finding might have implications in other cases of both biological and chemical interest, especially when dealing with macromolecules in complex with transition metal ions.