

The experiment was initiated by setting up the high pressure equipment available at the SNBL. Several modifications needed to be added, as the powdered samples were treated to vacuum prior to the noble gas, and this had to be done very slowly. We focused these initial tests on Krypton which was added to the capillary cell by means of varying the output pressure from the reducer. XAS scans were collected at various pressures up to 100 bars, or until the glue failed to hold the capillary in place. Secondary tests were also concluded by cooling the sample to 120 K to reduce the level of noise. This however, caused the Krypton to liquidise at temperatures extending that of the condensation point, and subsequently pulsate within the capillary due to temperature gradients.

The XAS spectra of Krypton at 40-45 bar pressures in zeolite Y is shown below together with an empty run at similar pressures. The EXAFS oscillations are clearly visible in the presence of the microporous zeolite systems. However, as revealed in the empty run at 47 bar, a feature is apparent around 20 eV above the edge. This is due to electronic transitions, and cannot be accounted for by background removal procedures. This led to a false shell in the Fourier Transform, which complicated the refinements of the coordination numbers of the Krypton clusters.

