

Experimental report for proposal CH 2519

In our previous proposal (CH 2519), we performed time-resolved X-ray scattering on $\text{Rh}_4(\text{CO})_{12}$ in solution at 25 keV using the Ir multilayer, in order to determine the structure of the intermediates and follow their reaction dynamics. Due to limited beamtime and X-ray flux with the Ir multilayer, three time delays (100ps, 800ps and 9 ns) were measured in our previous experiment (CH 2519) as shown in Figure 1. The data quality and number of time delays are not enough to determine the transient structure and follow the reaction dynamics.

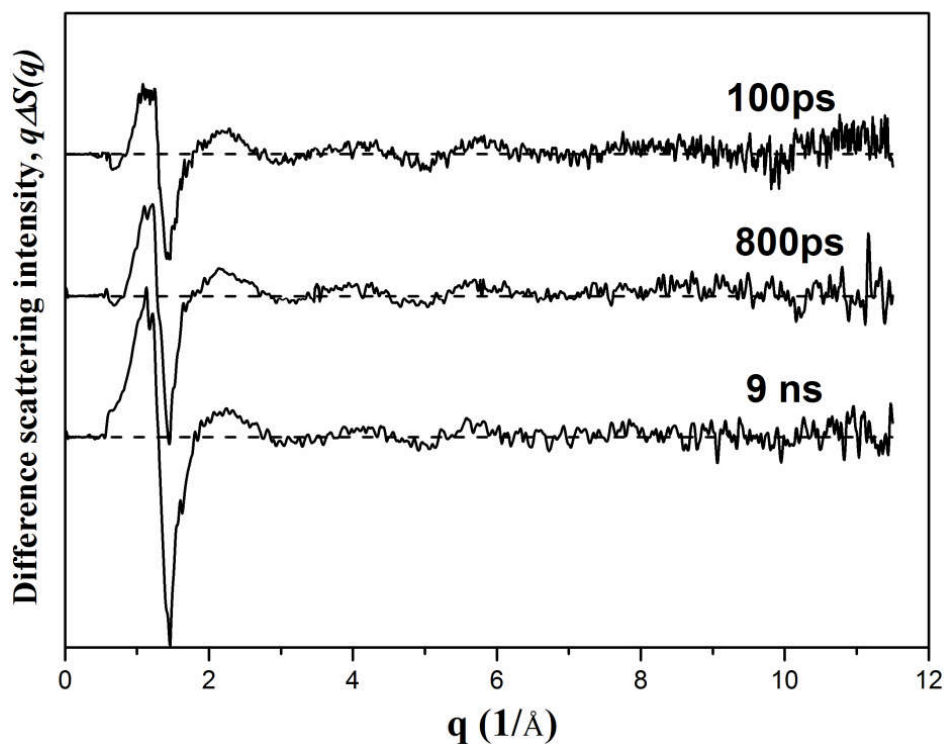


Figure 1: Time-resolved X-ray scattering intensities at three time delays from previous measurement (CH-2519).

To complete this study, we have submitted another proposal (CH 5622) to measure the photochemical reactions of $\text{Rh}_4(\text{CO})_{12}$ in solution with the “pink” beam at 18 keV, which provides much higher flux, so more time delays at 300ps, 500ps, 1ns, 3ns, 7ns, 30ns, 70ns, 100ns, 300ns, 700ns and 1us, can be collected to follow the reaction dynamics in more details.