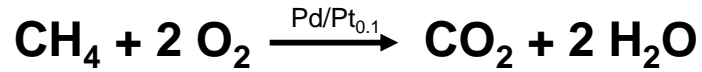
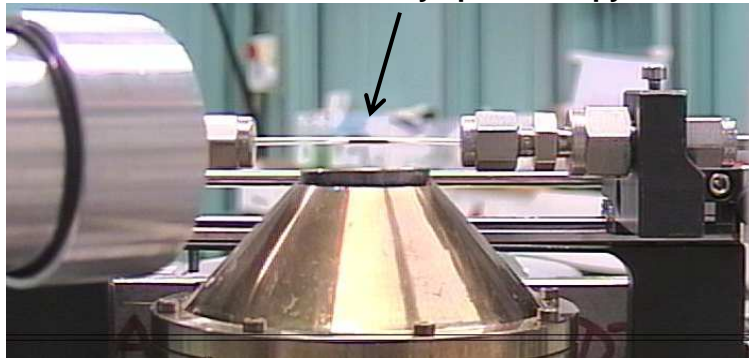


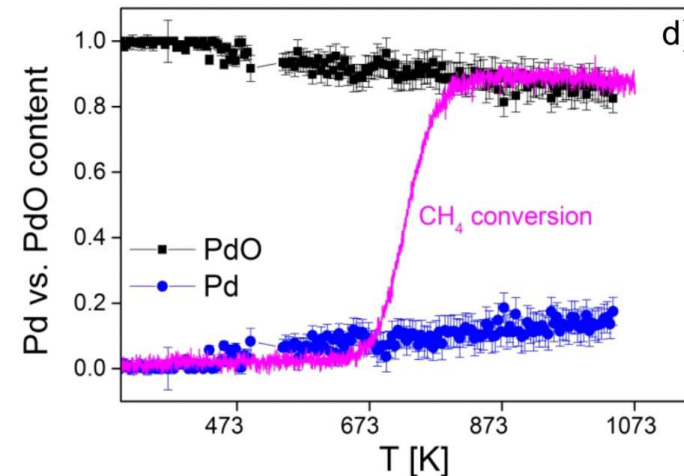
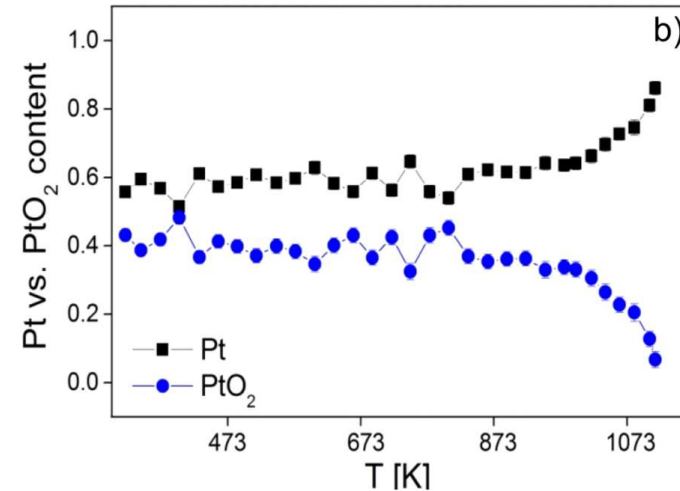
# Oxidation state of the catalytic particle Characterization by XANES



Micro-reactor for X-ray spectroscopy



- PdO dominant species in fresh and deactivated catalyst
- PdO stable under reaction conditions up to ~800 °C
- Pt present as metallic Pt and PtO<sub>2</sub> or PtO
- Reduction of PtO<sub>x</sub> species at higher temperature



A. T. Gremminger, H. W. Pereira de Carvalho, R. Popescu, J.-D. Grunwaldt, O. Deutschmann. *Catalysis Today* (2015) 258 (2015) 470.