

## Synthesis and characterization of CO-tolerant anode Pt based electrocatalyst for proton-exchange membrane fuel cells

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Hydrogen ( $H_2$ ) is the ideal fuel for proton exchange membrane (PEM) fuel cells and typically produced via steam reforming or partial oxidation of methanol or other hydrocarbons. Platinum supported on high-surface area carbon black has proven to be the most active catalyst for hydrogen oxidation reaction (HOR) occurring at the anode of the PEM fuel cells. Unfortunately, however, carbon monoxide (CO) is a byproduct of these  $H_2$  production processes, and even a few ppm of CO contained in the  $H_2$  stream can severely poison the platinum catalyst. The CO poisoning problem leads to significantly decreased output power and energy utilization efficiency, and currently remains one of the challenges hindering the commercialization of PEM fuel cells [1]

In this study, we examine electrochemical oxidation properties using the cyclic voltammetry (CV), and CO-stripping cyclic voltammetry over different carbon supported Pt and Pt based catalysts (homemade) whose structure was investigated by X-ray diffraction (XRD).

### References

- [1] Y. Liang et al. Journal of Catalysis 238 (2006) 468-476