

## Ag@Pd Bimetallic Structures for Enhanced Electrocatalytic CO<sub>2</sub> Conversion to CO: An Interplay between Strain Effect and Ligand Effect

Zuolong Chen<sup>1</sup>, Xiyang Wang<sup>1</sup>, Lei Wang<sup>1</sup>, Yimin A. Wu<sup>1\*</sup>

<sup>1</sup>Department of Mechanical and Mechatronics Engineering, Waterloo Institute for Nanotechnology, Materials Interfaces Foundry, University of Waterloo, Waterloo, Ontario N2L 3G1, Canada

### Supplementary Materials

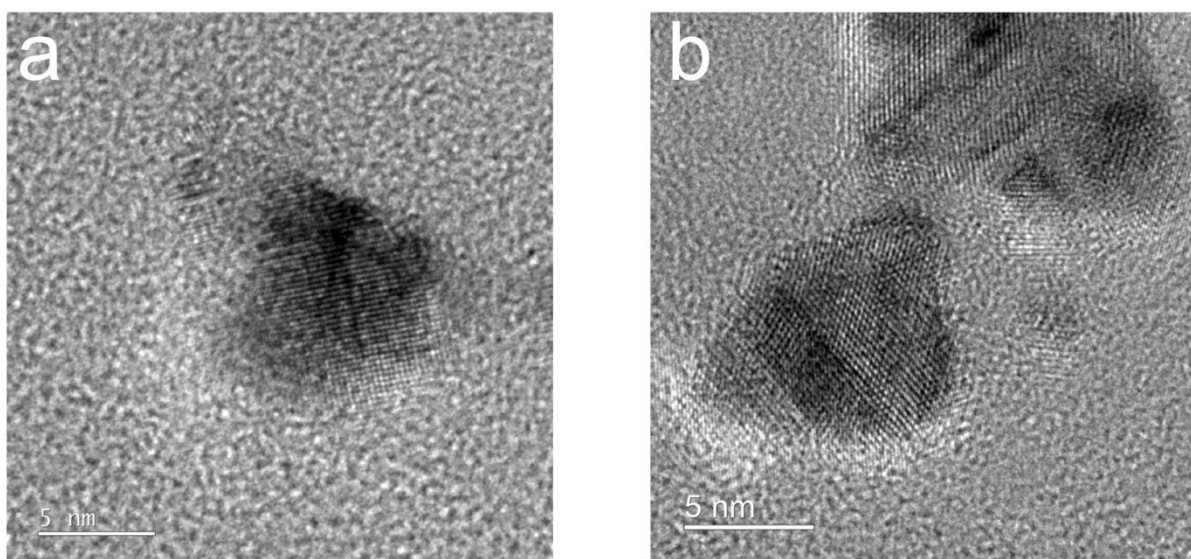
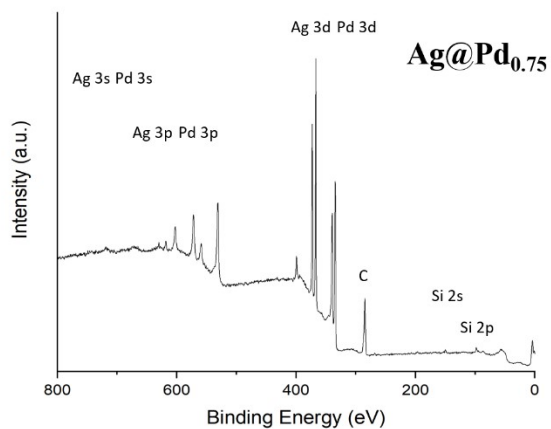


Figure S1 TEM images of (a) Ag@Pd<sub>0.75</sub> and (b) Ag@Pd<sub>3</sub> Nanoparticles



Sample	Pd At%	Ag At%
<b>Ag@Pd<sub>0.75</sub></b>	53.82	46.18
<b>Ag@Pd<sub>1.5</sub></b>	76.23	23.77
<b>Ag@Pd<sub>3</sub></b>	84.86	15.14

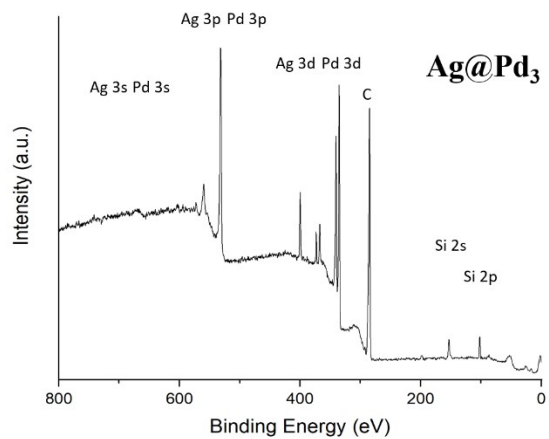
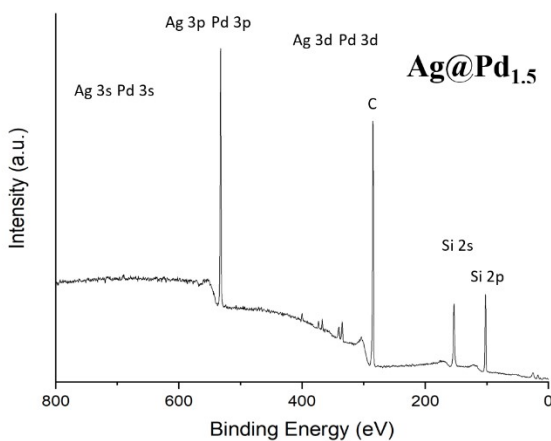


Figure S2 XPS Survey of Ag@Pd Nanoparticles

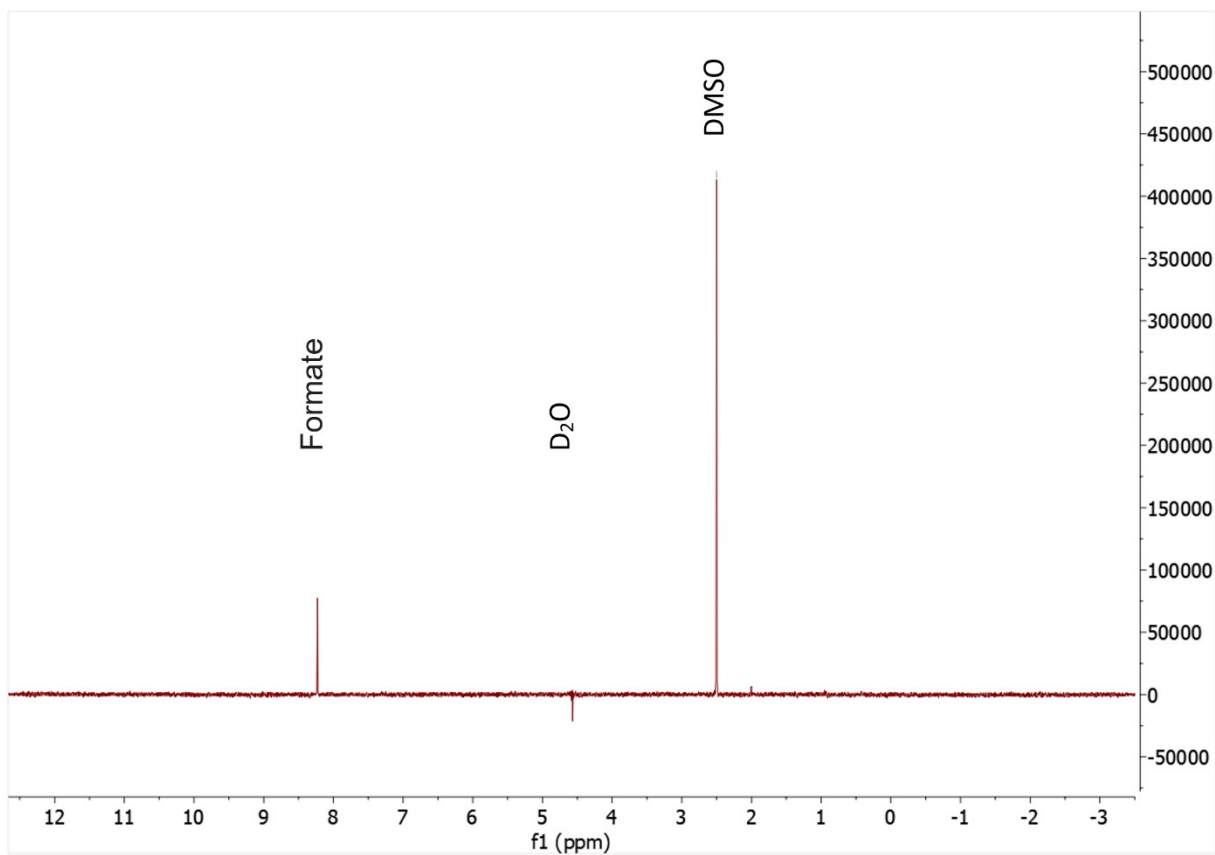


Figure S3 NMR spectrum of the liquid sample after the 22-hour long term stability test of  $\text{Ag@Pd}_{1.5}$

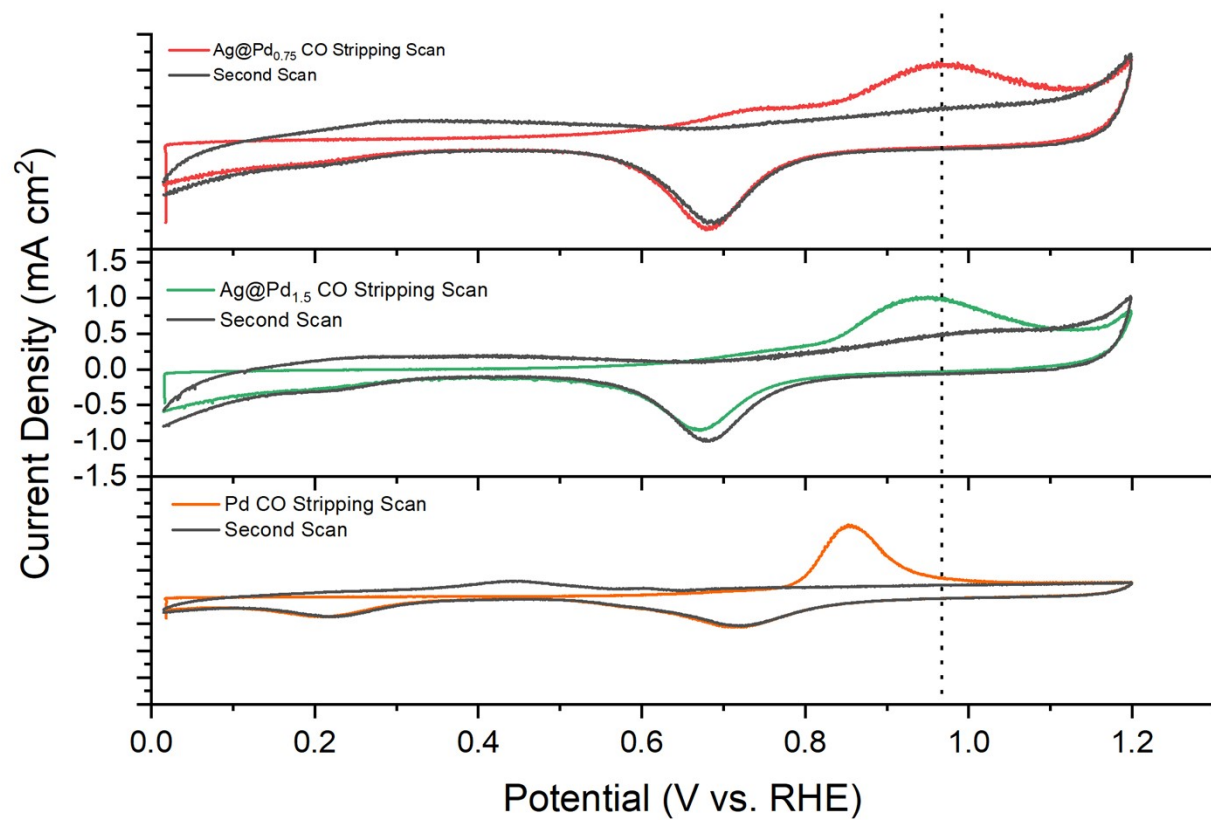


Figure S4 CO Stripping CV. The colored lines represent the CO stripping CV curve, and the black lines represent the second scan after CO is stripped from the Catalyst surface.