

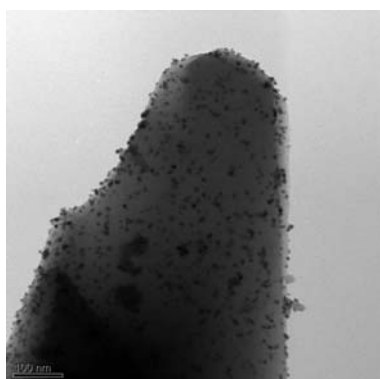
Metallic and Bimetallic Nanocatalysts Incorporated into Highly Porous Coordination Polymer MIL-101

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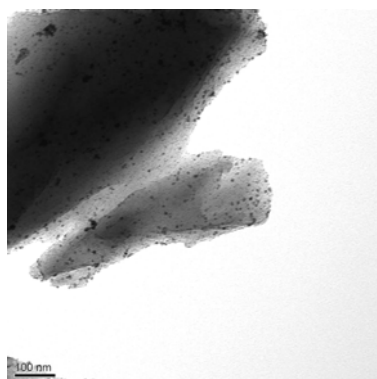
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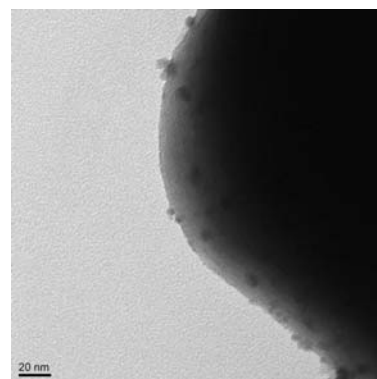
Supporting Information



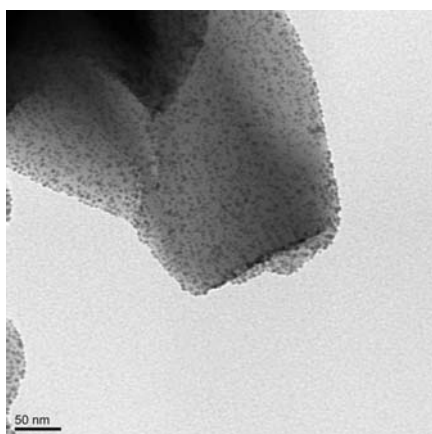
4.9 % Pd



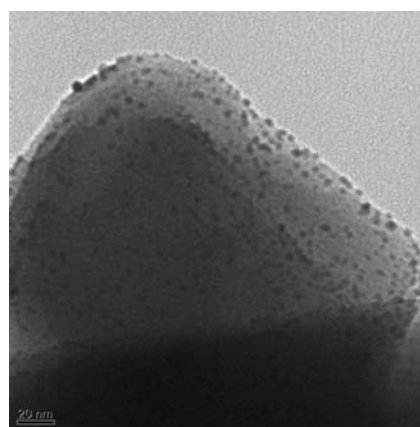
2.9% Pd



2.9 % Pd

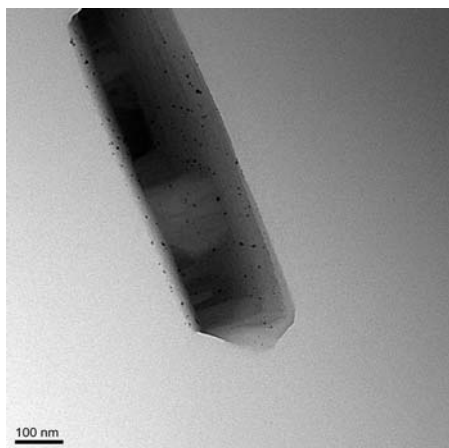


0.5 % Pd + 2% Cu

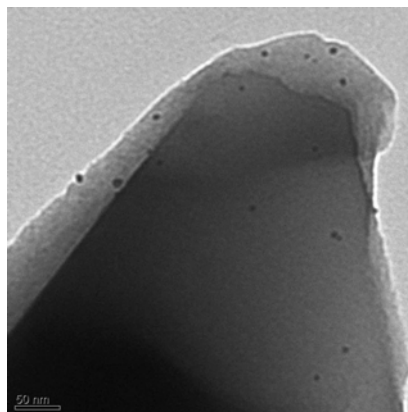


0.5 % Pd + 2% Cu

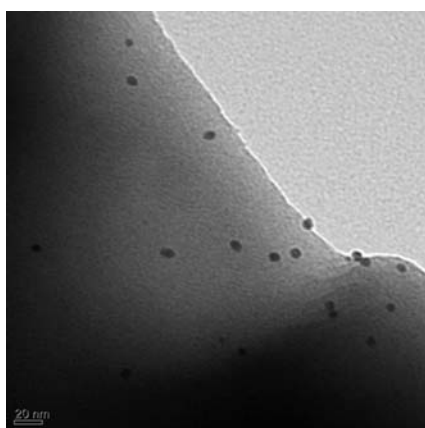
Figure S1. TEM images of metal nanoparticles loaded on MIL-101 prepared by method-A.



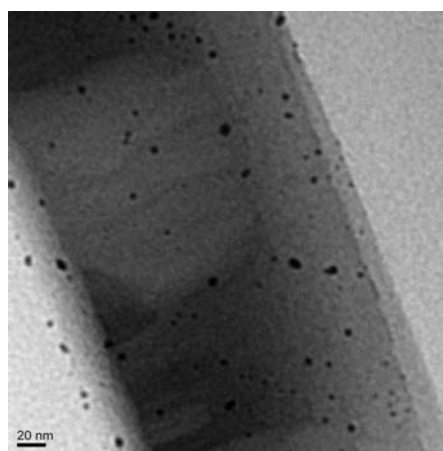
0.3 % Pd



0.1 % Pd



0.3 % Pd



0.3 % Pd

Figure S2. TEM images of metal nanoparticles loaded on MIL-101 prepared by method-B.

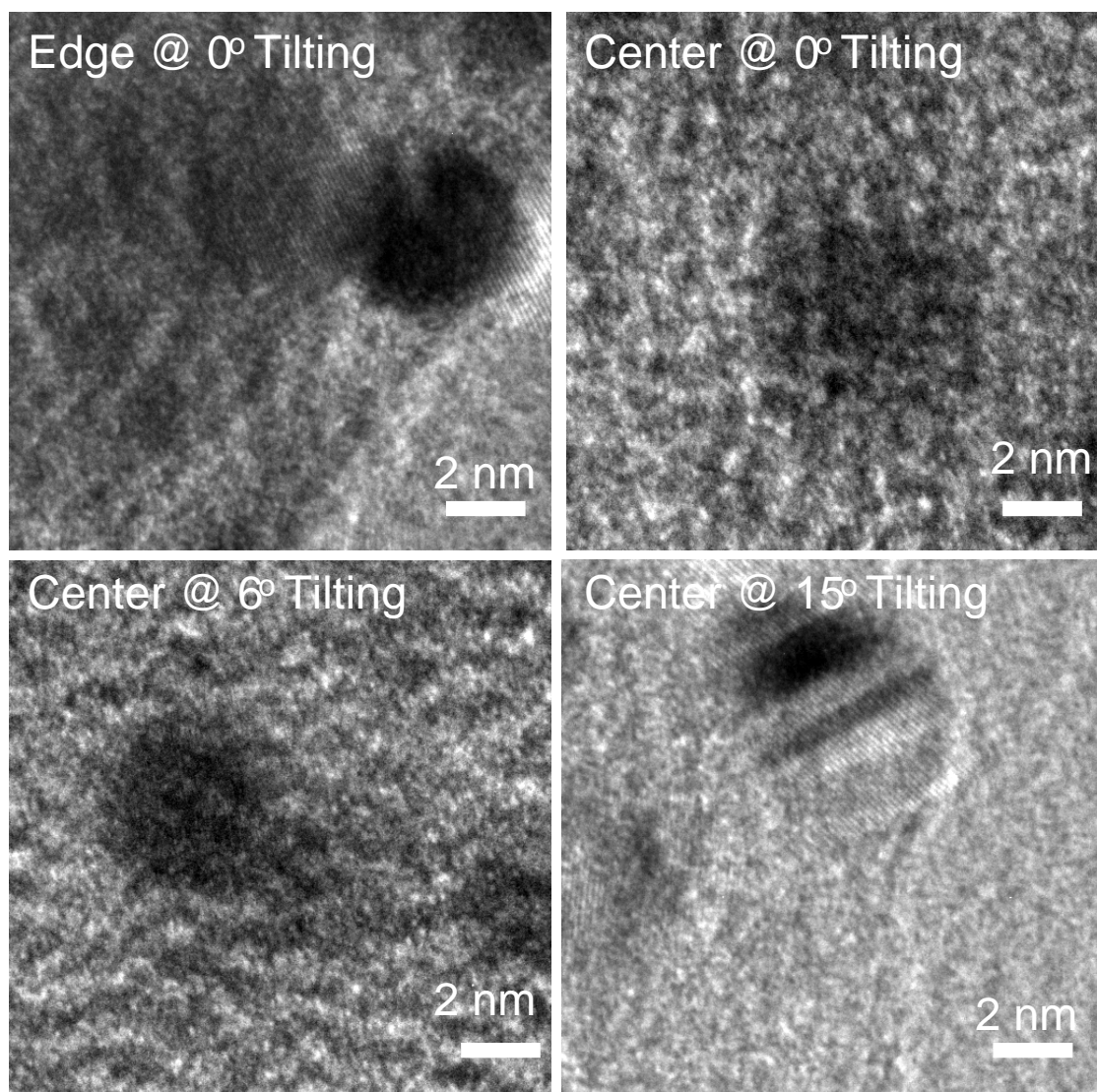


Figure S3-a. HRTEM with tilting 0-15° for 2.9 wt% Pd on MIL101.

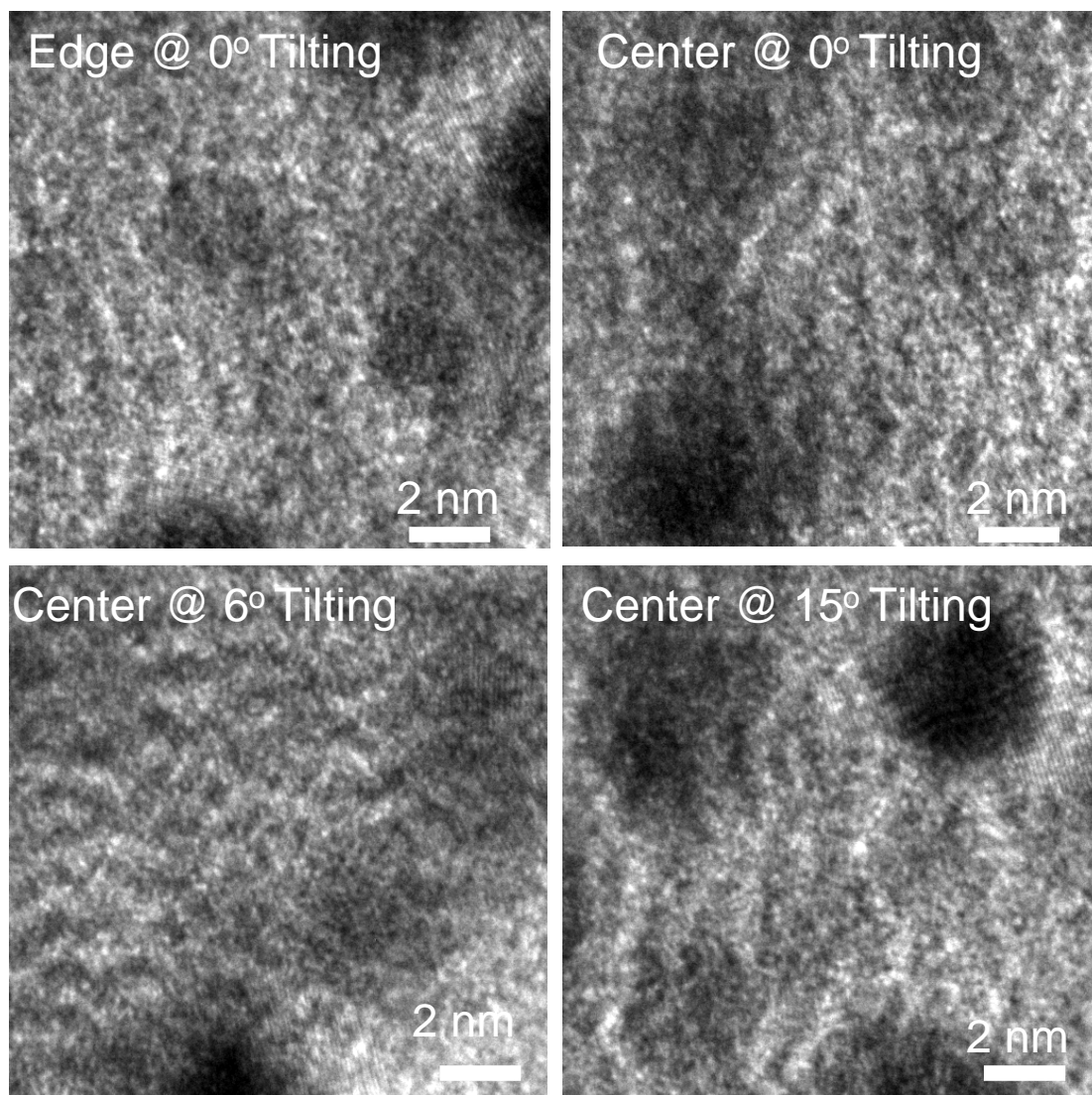


Figure S3-b. HRTEM with tilting 0-15° for 2.9 wt% Pd on MIL101.

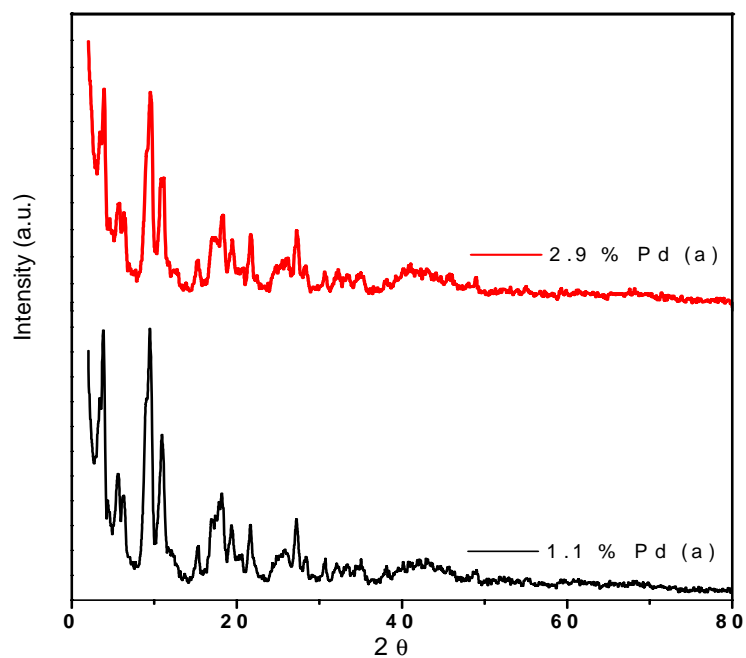


Figure S4-a. XRD data for the 2.9 wt% and 1.1 wt% Pd on MIL-101.

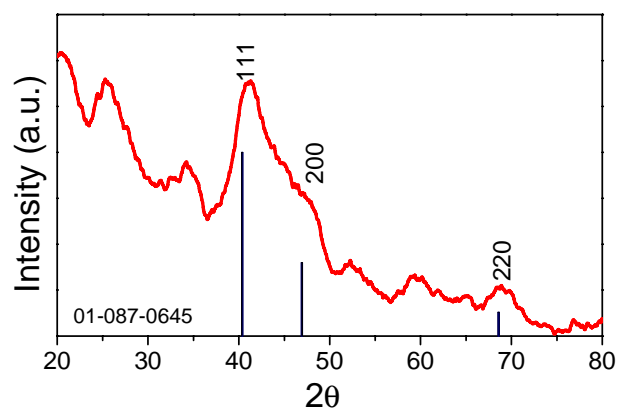


Figure S4-b. XRD data for the 4.9 wt% and Pd/MIL-101 showing the diffraction peaks of the crystal planes of Pd. The broadening matches the small particle size of Pd (2-4 nm).

Catalytic Measurements

For the CO catalytic oxidation the sample was placed inside a Thermolyne 2100 programmable tube furnace reactor as shown in Figure S2. The sample temperature was measured by a thermocouple placed near the sample. In a typical experiment, a gas mixture consisting of 4% wt. CO and 20% wt. O₂ in helium was passed over the sample while the temperature was ramped. The gas mixture was set to flow over the sample at a rate of 100 cc/min controlled via MKS digital flow meters. The conversion of CO to CO₂ was monitored using an infrared gas analyzer (ACS, Automated Custom Systems Inc.). All the catalytic activities were measured (using 50 mg sample) after a heat treatment of the catalyst at 110 °C in the reactant gas mixture for 15 minutes in order to remove moisture and adsorbed impurities.

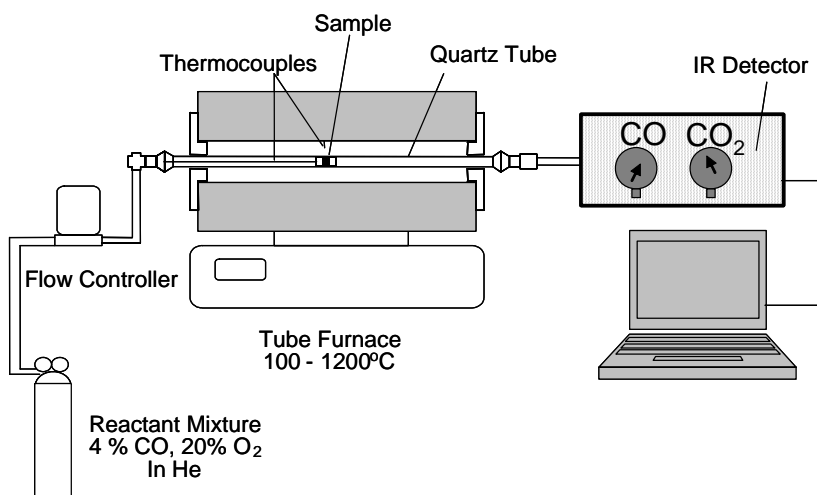


Figure S5. Experimental set-up for the catalytic oxidation of CO