

Catalytic Oxidation of Liquid fuels on Palladium
Nanoparticles Loaded Carbon Nanotubes
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Electrocatalytic system for the oxidation of liquid fuels with high efficiencies and long life-time are high required for energy storage and conversion. The substrate (electrode) and catalyst are thus to be optimized with respect to their surface, size, shape etc.

In this presentation, we will show the oxidation of liquid fuels including methanol, ethanol, propanol, glycol, formic acid, and formaldehyde by using a bare glassy carbon electrode, a CNT film coated electrode, as well as palladium nanoparticle/CNT film coated electrode. The loading of palladium nanoparticles were conducted using a simple ethylene glycol reduction method in an oil bath. The Pd NPs loaded on MWCNTs were characterized with scanning transmission electron microscopy and energy dispersive X-ray spectroscopy. Palladium nanoparticles loaded CNT film coated electrode showed high catalytic ability towards oxidation of liquid fuels. The comparison of all these catalytic systems with those traditional carbon-based Pd catalysts with respect to life-time, poisoning effect, etc. will be shown and discussed.