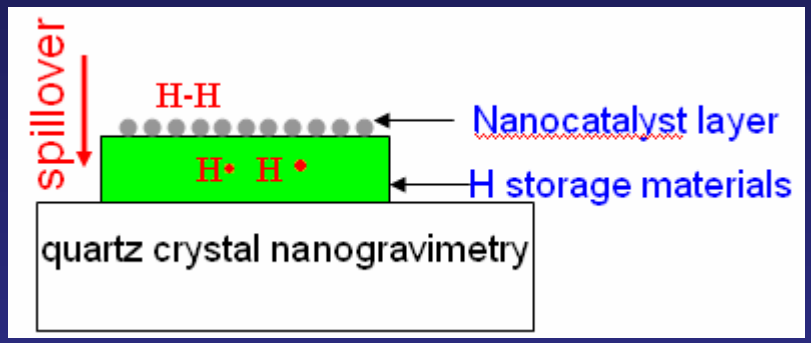
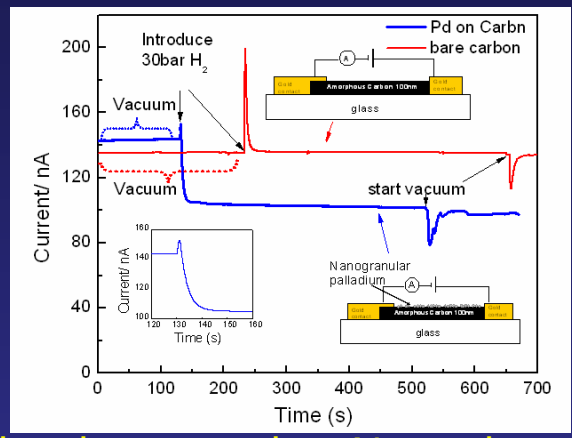
I. Spillover-Enhanced Hydrogen Storage and II. Nanowires for Solar thermoelectric Energy Conversion

Tao Xu, Department of Chemistry and Biochemistry, Northern Illinois University

Hydrogen spillover significantly enhance the capability of hydrogen storage materials. We aim at the fundamental study on hydrogen spillover at the interface of nanocatalyst and storage materials by quartz crystal nanogravimetry and electrical study.





Free-standing nanowires are highly desired for solar thermoelectric conversion. Nanowires must not be in contact with each other so as to not to undo quantum confinement effects, which boost the figure of merit . However, in the template-assisted electrochemical synthesis of nanowires, surface tension on the nanowires inevitably causes the collapse of the nanowires into an entangled mess during the evaporation of solvent. This problem is overcome through decreasing the polarity of mutual-soluble rinsing solvents.