



THE  
ORGANIZATION FOR CULTURAL  
DIVERSITY IN CHEMISTRY

Presents...

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5 PM  
Thurs Nov 1, 2007  
Mol. Sci. 3440

OPEN Reception  
6 PM  
Café Commons

**“Metal Uptake, Reduction, and Nanoparticle Formation by Plants”**

The use of plants for the removal of excess toxic heavy metals from soil and water (phytoremediation) is a cost-effective alternative to clean up heavy metal contamination. Laboratory studies demonstrated that desert plants such as mesquite (*Prosopis spp.*) had the potential of being used in chromium phytoremediation. X-ray absorption spectroscopy (XAS) studies showed that some of the supplied Cr(VI) was uptaken by the mesquite roots; however, the data analyses of the plant tissues demonstrated that Cr(VI) was fully reduced to Cr(III) in the leaf tissues. In addition, transmission electron microscopy (TEM) studies showed that alfalfa plants formed gold and silver nanoparticles inside the living tissues. Atomic resolution analysis confirmed the nucleation and growth of Au and Ag nanoparticles inside the plant and that the Au and Ag nanoparticles were in a crystalline state.

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