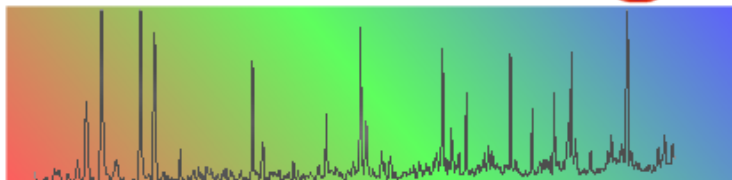




# SAS-Chicago



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Please visit our linked business cards on the [last page](#) of this flyer.

## September Meeting

Thursday, September 20, 2007

The September 2007 meeting will be held at the Wellington Restaurant, located at 2121 S Arlington Heights Rd, Arlington Heights, IL 60005. See the map on the following page.

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Social Hour: 5:30 PM

Dinner: 6:30 PM

Speaker: 7:30 PM

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### Metal Uptake, Reduction, and Nanoparticle Formation by Plants

by

**Jorge L. Gardea-Torresdey, Ph.D.**

*University of Texas-El Paso*

Traditional methodologies used in the removal of excess toxic heavy metals from soil and water are expensive and labor intensive. However, the use of plants (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. Other studies showed that alfalfa plants exposed to  $\text{KAuCl}_4$  and  $\text{AgNO}_3$  enriched media, concentrated in their tissues high amounts of these precious metals. 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. XAS studies corroborated that the nanoparticles were metallic gold and silver. These results demonstrated that plants possess the ability to synthesize nanostructures of significant value to science and technology.

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Please make your dinner reservations for the upcoming meeting by email at [sas.chicago@bigfoot.com](mailto:sas.chicago@bigfoot.com), by using the form on our web page < <http://www.sas-chicago.org/Online%20Registration%20at%20Wellington.htm> > or by calling Mary Kaplar at 708-449-5767. Leave your name, company affiliation, a telephone number, the number of reservations and your choice of entree. Please call by noon Friday, September 14th, so that proper arrangements can be made with the restaurant. If you can't attend, cancel by Friday noon: SAS is charged for no-shows.

**Entree choices: London Broil with Bordelaise Sauce, Breast of Chicken with Teriyaki Sauce, or Vegetarian Fettuccine.**

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Dinner Cost Members: \$25

Students and Unemployed Members: \$10

Non-members: \$30

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## Biography of Professor Jorge Gardea-Torresdey

Jorge Gardea-Torresdey received his PhD in Analytical Chemistry from New Mexico State University in 1988 and was a postdoctoral fellow at the same University from 1998 to 1990. In 1990-1993, he was a Senior Environmental Scientist at the US Department of Energy's Waste-management Education & Research Consortium and joined The University of Texas at El Paso (UTEP) in 1994. He is the Richard M. & Frances M. Dudley Professor of Chemistry and Environmental Science and Engineering and the Chairperson of the Department Chemistry at UTEP.

The research interests of Dr. Gardea-Torresdey include environmental chemistry; development of electrochemical, chromatographic and spectrophotometric analytical methods for metals and hazardous organic compounds in the environment. Other components of Dr. Gardea's investigation are the metal binding to bio-materials for remediation of contaminated waters using X-ray absorption spectroscopy techniques; phytoremediation, novel methods for the bioproduction of nanoparticles and air quality/environmental health issues in the El Paso-Juarez area. His current X-ray absorption spectroscopy studies are funded by the US National Institutes of Health, the US Department of Energy, and the US Environmental Protection Agency. He has authored or co-authored over 230 publications and issued five United States patents for environmental remediation.

Dr. Gardea-Torresdey's achievements include the 2004 Benedetti-Pichler Award in Microchemistry and the Distinguished Achievement Award for Research, and the Dudley Professorship at UTEP. Dr. Gardea-Torresdey currently serves in the Editorial Board of Environmental Science and Technology, Environmental Toxicology and Chemistry, Ciencia en la Frontera, Applied Spectroscopy Reviews, Scientiae Naturae, and Microchemical Journal and is editor of the Journal of Hazardous Materials.

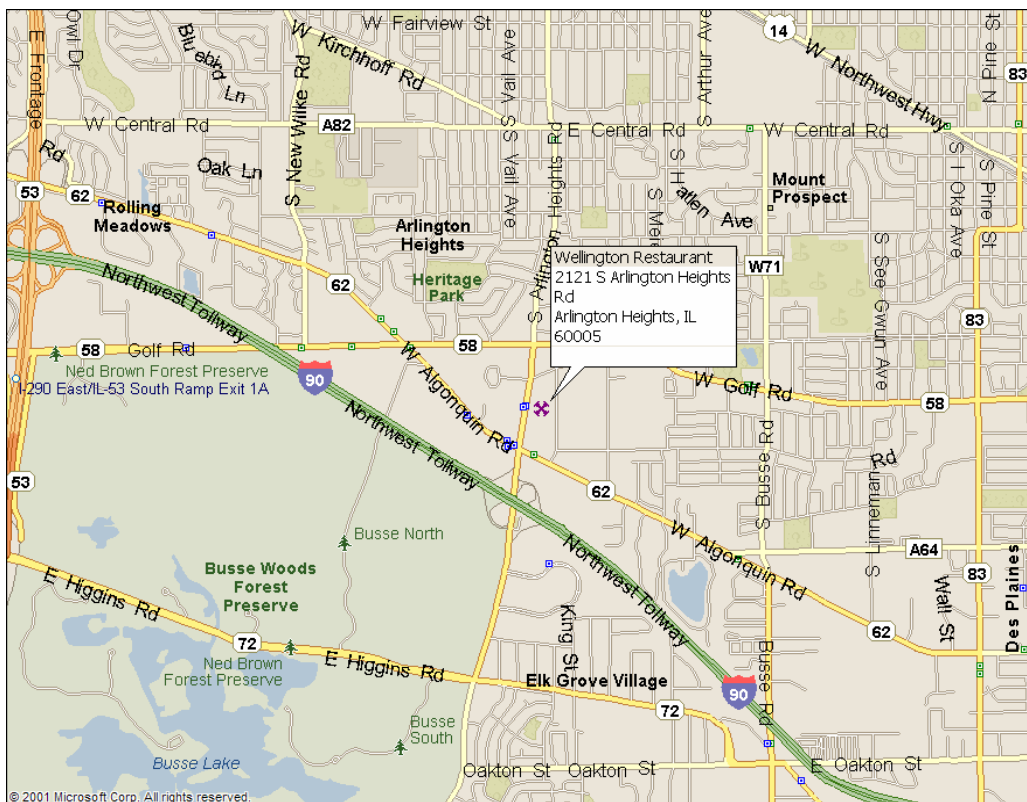
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## DIRECTIONS TO THE WELLINGTON RESTAURANT

From Chicago: Take Interstate 90 (Northwest Tollway) west to Arlington Heights Road exit. Proceed north to the restaurant.

From the southwest: Take 355 north to Route 53 north and exit at Algonquin Road east. Go to Arlington Heights Road. Turn left (north) and proceed to the restaurant.



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