



Prof. K. Klier, Chairman



**Prof. Albert V. Crewe, Fermi
Institute**



M. Jose Yacaman

ADVANCED METHODS

of catalyst characterization

This symposium, jointly sponsored with the American Chemical Society, focused on the ultrastructure of heterogeneous catalysts and the relationship between structure and catalytic activity. Characterization tools highlighted in the symposium included transmission electron microscopy (TEM), scanning TEM (STEM), electron energy loss spectroscopy (EELS), ion scattering spectroscopy (ISS), infrared characterization (IR), nuclear magnetic resonance (NMR), Mossbauer spectroscopy and extended X ray absorption fine structure (EXAFS).

The symposium comprised 30 presentations from an international cast of participants. Countries represented included The Netherlands, France, Belgium, Mexico, England and the United States. A programming innovation was also incorporated. While all papers were presented in the usual lecture format, authors also prepared and displayed poster-format versions of their work for more extensive

scrutiny. Although these posters were unmanned, considerable information of a more detailed nature was made available to interested attendees of this and other symposia.

Among the outstanding research achievements reported in the symposium, Albert V. Crewe of Fermilab reported on atomic resolution STEM imaging of Pt atoms on carbon. M.J. Yacaman of the University of Mexico reported on the characterization by conventional TEM, albeit of ultra high resolution, of particles in the 25 - 200Å range. J.M. Dominguez and G.W. Simmons similarly reported on the application of analytical STEM techniques to catalyst particles of only 20Å size. In addition to these direct observation methods, considerable interest was generated by authors who described application of NMR techniques to catalyst research. These included N.T. Stokes *et al* of the University of Illinois, J.B. Nagy *et al* of Belgium, and J.M. Thomas of the University of Cambridge, England.

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