599th NETS-ACS Meeting
Awards Dinner

Chuck Sumner ***2011 Distinguished Member***
Gary Hartley ***2011 Chemical Technician Award***
And many more

Date: Thursday, April 21st, 2011
Location: ETSU, Culp Center, East Tennessee Room

Agenda

6:00 PM Social
6:30 Dinner
7:30 Awards Presentation
8:00 Dr Chuck Sumner presentation

Menu
Roast Turkey with Cornbread Dressing
Baked Italian Lasagna (vegetarian)
Sweet Potato Casserole
Green Bean Casserole
Asparagus (Grilled)
Chess Pie

The cost for the meal is $15/person. Make check to "NETSACS" Indicate number in your party. RSVP's are fine with the understanding that payment will be made at the meeting. No cost to attend the lecture only.

Please RSVP by noon on April 14th, 2011 Please reply to: **Mary K. Moore** mkmoore@eastman.com 423-229-1911	Next Meeting on May 19th, 2011 Joint meeting with AICHe Dr. Al Hazari "History of Chemistry"

Dr. Chuck Sumner
2011 Distinguished Member Award
Eastman Chemical Company

"The Chemistry of $[py_3Co_3O(OAc)_5OH][PF_6]$ – A Model Compound for the Active Form of Cobalt in the Terephthalic Acid Process."

An enormous amount of terephthalic acid (TPA) is produced world-wide by the cobalt catalyzed autoxidation of p-xylene in acetic acid solvent. The exact structure of the cobalt catalyst is unknown, thus it is difficult to carry out meaningful experiments designed to explore the stoichiometric chemistry of the active form of the catalyst. In order to circumvent this difficulty, the model compound, $[py_3Co_3O(OAc)_5OH][PF_6]$, was synthesized and employed in a number of stoichiometric reactions related to the chemistry observed in the TPA process. A brief overview of the chemistry of the TPA process will be presented, and the chemistry of $[py_3Co_3O(OAc)_5OH][PF_6]$ and how it is related to the TPA process will be discussed in more detail. For example, the thermal decomposition of $[py_3Co_3O(OAc)_5OH][PF_6]$ in acetic acid solution in the absence of oxygen produced carbon dioxide, methane, carbon monoxide, picoline, and formic acid as the major products. Evidence is presented that the initial step of thermal decomposition is production of methyl radical.

Bio

Chuck is a native of Kingsport, Tenn. and graduated with a B.S. in Chemistry from East Tennessee State University in 1976. He received his Ph.D. degree from the University of Texas at Austin in 1981 under the supervision of the late Prof. Rowland Pettit. He joined Eastman in the fall of 1981 as a Research Chemist in the Homogeneous Catalysis Group. Initial work focused on the chemistry of copper hydride complexes and resulted in the discovery of a hydride transfer from a copper hydride to a ruthenium carbonyl to give a neutral ruthenium formyl complex, which led to the discovery of a free-radical mechanism for the decomposition of transition metal formyl complexes. Subsequent work has focused on the chemistry of the cobalt-catalyzed autoxidation of p-xylene to terephthalic acid (TPA) and the hydrogenation of trace-level impurities in isophthalic acid and TPA. In addition to the identification of pathways for the formation byproducts in the TPA process, his work on cobalt-catalyzed autoxidations resulted in the isolation and characterization of a family of oxo-centered cobalt(III) cluster complexes. Other areas of past work include processes for polymer intermediates and the processing of vegetable oil distillates to isolate tocopherol and tocotrienol concentrates (Vitamin E precursors). His current research is focused on the development of heterogeneous hydrogenation catalysts. During his career at Eastman, Chuck has authored 12 publications and 41 patents.

Chuck and his wife Carolyn live in Kingsport. Chuck enjoys the guitar, weight lifting, gardening, and golf.