

Thursday 09 Nov 2017

HIGH TEMPERATURE CHEMISTRY AT NASA AND EAST CENTRAL UNIVERSITY

Interesting Projects for Undergraduate Research

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An important area of chemistry is thermodynamics and materials chemistry, particularly at high temperatures. This presentation will highlight work performed at the NASA Glenn Research Center in Cleveland, Ohio, on research problems related to corrosion in combustion environments, high speed (hypersonic) flight, and space vehicle reentry. The emphasis has always been on high temperature chemistry and thermodynamics of the relevant chemical systems. Chemical systems examined include the silicon-oxygen-hydrogen, chromium-oxygen-hydrogen, and aluminum-oxygen-hydrogen systems. The data are of use in evaluating possible Thermal Barrier Coating (TBC) and Environmental Barrier Coating (EBC) materials for turbine blades in jet engines. Improved fuel efficiency requires higher temperatures of operation, which in turn, requires materials capable of withstanding higher temperatures through many cycles of operation. These and other projects performed at NASA Glenn Research Center have provided the inspiration and starting point for several undergraduate research projects at East Central University. The connections between work at a government laboratory and undergraduate research will be discussed.

6:00-7:00 pm Dinner

7:00-8:00 pm Presentation

Oklahoma State University

Edmond Low Library, Oklahoma State University

Peggy Helmerich Browsing Room, 2nd Floor, East Side

map: <http://geosys.okstate.edu/interactive-maps/campus-map.aspx>

Buffet Menu by Celebrations Catering, OSU

chicken enchiladas, salsa rojas

black beans, Mexican rice, warm tortillas

seasonal sofrito vegetables, garden salad

sour cream, shredded cheese, pico de gallo

chips, salsa, and churros.

Cost

\$15 members

\$5 students

RSVP Deadline

Monday, Nov 6th, 5 pm

Contact: Smita Mohanty

smita.mohanty@okstate.edu

Park in lot 31



OSU campus map
QR code



OSU parking map
QR code

RSVP is NOT required to attend the presentation.

Dwight L. Myers Biographical Sketch

Dr. Dwight Myers was born in Kansas City, Kansas, and attended Kansas City, Kansas Community College, receiving an Associate's Degree in 1975. He then attended Wichita State University in Wichita, Kansas, receiving a B.S. (1977), and M.S.(1983), both in Chemistry. He also worked two years for Vulcan Materials Company in Wichita. He taught at Friends University for 11 years, taking a sabbatical during which he completed a Ph.D. (1991) at Wichita State in Physical Chemistry. Dr. Myers came to Oklahoma in August of 1993, as an Assistant Professor of Chemistry at East Central University in Ada. He is currently Professor and Department Chair of Chemistry at ECU. His research interests are in the areas of thermodynamics and materials chemistry, particularly high temperature chemistry. During his time at East Central University, Dr. Myers has endeavored to introduce as many

students as possible to undergraduate research. His experience in undergraduate research at Wichita State University was invaluable in shaping his graduate and professional life. Numerous students have conducted undergraduate research with him at ECU. Their results have been presented at regional ACS Meetings, at Oklahoma Academy of Science Technical Meetings, and Oklahoma Research Day. Since 1999, he has worked at the NASA Glenn Research Center in Cleveland, Ohio, for ten summers on research problems related to corrosion in combustion environments, high speed (hypersonic) flight, and space vehicle reentry. He has tried to bring some of this exciting research back to East Central University, to provide undergraduate researchers with interesting chemistry projects.

DRIVING DIRECTIONS TO THE EDMON LOW LIBRARY

Directions from Tulsa via Cimarron Turnpike

- Take Hwy 64 to the Cimarron Turnpike - toll gate (manned - \$0.75)
- Take the OSU "Y" turnoff (approximately 20 miles) - toll gate (unmanned - \$0.50)
- Continue on the turnpike. It will curve left into Stillwater and become Washington Street.
- Drive thru four traffic lights (Richmond Rd, The Links Apartments, & Airport and Lakeview Rds)
- Just before the next traffic light, go right at the "Y" (do not go through the light). This will keep you on Washington.
- Pass through two more traffic lights (Will Rogers Elementary School and McElroy Street).
- At the next traffic light, take right to Hall of Fame going west.
- Turn left (south) into Monroe Street at the first traffic light on Hall of Fame.
- When you reach the intersection of Monroe Street and Farm Road, take left to the parking lot #31 and park somewhere. This is a large lot and no parking hang tag is necessary after 5 PM.
- From the parking lot, you will walk south east in between two buildings towards the tower which is the Edmon Low Library.

Directions from Tulsa via State Highway 51

- Travel through Stillwater to Duck Street.
- Turn right (north) onto Duck Street
- From Duck street, take left (west) onto the Hall of Fame
- Turn left (south) into Monroe Street from Hall of Fame.
- When you reach the intersection of Monroe Street and Farm Road, take left to the parking lot #31 and park somewhere. This is a large lot and no parking hang tag is necessary after 5 PM.
- From the parking lot, you will walk south east in between two buildings towards the tower which is the Edmon Low Library.

Directions from Oklahoma City via I-35 North

- Take the Stillwater Exit and turn right on State Highway 51 (you are approximately 17 miles west of Stillwater).
- As you enter the edge of Stillwater, turn left (north) at 4th traffic light, which is Western.
- As you round the curve, it becomes Hall of Fame.
- When you reach the intersection of Monroe Street and Farm Road, take left to the parking lot #31 and park somewhere. This is a large lot and no parking hang tag is necessary after 5 PM.
- From the parking lot, you will walk south east in between two buildings towards the tower which is the Edmon Low Library

