Hudson Mohawk Section

Editor: Jian Mi (mij2@asme.org)

Newsletter

February 2009

Joint AIAA/ASME/RPI MANE Engineers Week Event

AIAA Distinguished Lectures Series

Topic: "Morphing, Monitoring and Harvesting"

Speaker: Prof. Daniel J. Inman
Director of Center of Intelligent Material Systems and Structures, G.R. Goodson Professor and AIAA Fellow, Virginia Tech

Date: Wednesday, February 18th

Time: **6:00PM** (hot hors d'oeuvres and cash bar)
Lecture 7:00PM – 8:30PM

Place: EMPAC at Rensselaer Polytechnic Institute - EMPAC Studio 2 and Evelyn's Café (next door to Studio 2)

RSVP by Noon February 16, 2009

Contact: Dr. Eric J. Ruggiero
(ruggiero@research.ge.com, or (518) 387-4279)
(E-mail reply is preferred.)

See Page 3 for Details

Seminar

Topic: "Innovation is the Key to Sustaining Sustainability"

Speaker: Dr. Hooshang Heshmat
Co-Founder, President & CEO/Technical Director of Mohawk Innovative Technology, Inc.

Date: Thursday, Feb. 26, 2009

Time: **6:30PM Gather**
7:00PM Dinner
(Lecture to follow Dinner)

Place: Hudson Valley Community College, Campus Center, Room CTR-259, Troy, NY

RSVP by Tuesday, February 24

Contact: Fred Willett (willettf1@asme.org or 385-5706)

Abstract:

Economic survival and sustainability in the increasingly interconnected global community during the 21st century and beyond will require new and innovative technologies supported by subsequent continuous product improvements that minimize the negative impact to the earth's environment, resources and inhabitants.

In the past several years, worldwide consumption of energy, through consumer products, industrial processes and transportation systems has increased rapidly and has even given a whiff or glimpse of things to come in the not too distant future. As scarce resources become reality and global climate change accelerates, technological innovation must occur at a pace never before seen if we are to extend a new and sustainable lifestyle to more of the world's inhabitants while also protecting our environment.

Sustaining sustainability (i.e., the cycle of continually improving and introducing environmentally conscientious

products) will require that we radically alter our myriad of energy consuming and producing systems through technological innovation. While every branch of engineering has its own impact on and contribution to the environment, it is in the energy consuming and producing technologies that considerable effort is needed.

This paper will present several innovative oil-free systems designed to minimize deleterious emissions to the environment through higher system efficiencies and elimination of hydrocarbon lubricants. The discussion will also identify possible directions to foster innovation.

Speaker:

Dr. Hooshang Heshmat is Co-Founder, President & CEO/Technical Director of Mohawk Innovative Technology, Inc. (www.miti.cc), an applied research/product development company dedicated to green technology, specializing in integration of mechanical components into turbomachinery, testing/measurement and the design/fabrication of oil-free rotating machinery, plus establishing a biotechnology company based on their unique heart pump.

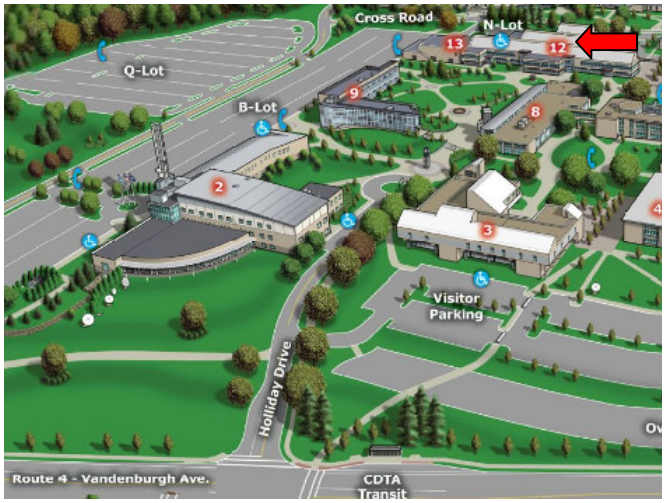
Dr Heshmat is an active ASME Fellow, 1994 Chairman of the International Joint ASME/STLE Tribology Conference, 1999-2000 Chairman of the Research Committee on Tribology of ASME, member of the ASME Tribology Division Executive Committee, an invited speaker for the 1997 ASME Satellite Broadcast on The Selection, Design, and Performance of Bearings and Seals.

Recent noteworthy achievements are that Dr. Heshmat is the ASME's 2007 Mayo D. Hersey award recipient for his significant contributions to the fundamental science of powder lubrication and advanced compliant foil bearings and the STLE's 2008 International Award recipient in recognition of his outstanding contribution to the field of tribology.

Talk: In September of 2007, Dr. Heshmat was an invited lecturer at the 34th Annual Leeds Lyon Symposium on Tribology in France. He will give his presentation, "Innovation is the Key to Sustaining Sustainability" at our meeting.

Directions:

The Siek Campus Center is building #12 in the figure below.



A full map of the HVCC campus can be found at:
https://www.hvcc.edu/campusmap/map_june04.pdf

From the North: The Hudson Valley campus is minutes from exit 7 of the Northway (I-87). Follow Rte. 7 East approximately 1.5 miles to I-787 South. Take I-787 South to Rte. 378 East. Over bridge bear right to Rte. 4 south and continue for 1 mile to the campus on your left.

From the South: Take Exit 23 off I-87 (NYS Thruway). Follow I-787 North 6 miles to the exit for Rte. 378 East and follow as above.

From the East: Take Exit B-1 of the Massachusetts Turnpike and follow I-90 approximately 9 miles to Exit 8. Turn left off ramp to Route 4. Campus is 5 miles ahead on the right.

From the West: Take Exit 24 off I-90 (NYS Thruway), continue on I-90 East 6 miles to I-787 North (Troy). Follow I-787 as above.

Dinner:

Unfortunately, we will not be able to have a cocktail hour

Dinner will be a hot buffet featuring a choice of salads, three entrees (eggplant parmesan - vegetarian, flank steak with onions & mushrooms, and chicken cordon bleu). A choice of desserts will also be offered, along with coffee.

Cost:

To encourage attendance, the section is covering a portion of the dinner cost.

$20 – Members and Guests (only one guest per member)
$25 – Non-Members
$10 – Full-time students (with current College ID)
Lecture Only (No Dinner) – Free

Reservations:

To reserve your seat, please contact Fred Willett (willettf1@asme.org or 385-5706) by ***NOON FEBRUARY 24***. E-mail contact is preferred.

“Morphing, Monitoring and Harvesting”

Abstract:

Energy is all around us. From the waste heat coming off of a car’s engine to the ambient vibration levels of the the Patroon Island Bridge over the Hudson, there are many forms of ambient energy wasted each day. What if one could harvest this energy?

One of the ways that this ambient energy can be captured is through the use of smart materials like piezoelectrics. Piezoelectric materials are able to convert mechanical strain into electrical charge and vice versa.

Through the use of such materials and proper electronics design, circuits can be built to harness the vibratory energy of a piezoelectric patch of material attached to a structure like a bridge. The harnessed, or harvested, power can then be used to power a small wireless device that can monitor the health of the structure.

These same materials can be integrated into the skin of a structure, like the body of a blended-wing aircraft. Instead of harvesting power, you could use the converse effect to morph the wing shape and chamber to change your angle of attack. The various actions of Morphing, Monitoring, and Harvesting will be discussed with ample experimental work presented. A Q&A session will follow the presentation.

Speaker:

Daniel J. Inman received his Ph.D. from Michigan State University in Mechanical Engineering in 1980 and is the Director of the Center for Intelligent Material Systems and Structures and the G.R. Goodson Professor in the Department of Mechanical Engineering at Virginia Tech.

He is a Fellow of the American Academy of Mechanics (AAM), the American Society of Mechanical Engineers (ASME), the International Institute of Acoustics and Vibration (IIAV), and the American Institute of Aeronautics and Astronautics (AIAA). He is currently Technical Editor of the Journal of Intelligent Material Systems and Structures (1999-) and Technical Editor of the journal Shock and Vibration (1999-). He won the ASME Adaptive Structures Award in April 2000, the ASME/AIAA SDM Best Paper Award in April 2001, the SPIE Smart Structures and Materials Life Time Achievement Award in March of 2003, the ASME/Boeing Best Paper Award by the ASME Aerospace Structures and Materials Technical Committee 2007, and the ASME Den Hartog Award in 2007.

Location:

This event will be held at the new 220,000 square-foot Experimental Media and Performing Arts Center (EMPAC) on the RPI Campus. A reception with hot hors d’oeuvres (cash bar) will be held at Evelyn’s Café. The lecture will be held in Studio2 next to the café.

Directions and Parking:

From the South:
Take I-87, the New York State Thruway, North to Exit 23. At Exit 23, get on I-787 North to Route 7 East. Follow directions to campus (below).

From the North:
Take I-87, the Adirondack Northway, South to Exit 7 East. Get on Route 7 headed Eastbound. Follow directions to campus (below).

From the East:
From I-90 (Massachusetts Turnpike, Berkshire Spur of the New York Thruway), take Exit B1. Continue West (13.5 miles) to the exit for I-787. Take I-787 North to Route 7 East. Follow directions to campus (below).

From the West:
Take I-90, the New York State Thruway, to Exit 24. From Exit 24, continue onto I-90 East. Exit onto I-787 North. Take I-787 North to Route 7 East. Follow directions to campus (below).

Directions to Campus:
From Route 7 East, get in the right lane, make a right at the FOURTH light onto Fifteenth Street. Follow Fifthteenth Street about 1 mile through two lights. You will pass under the Rensselaer footbridge. At the third light, turn right onto College Avenue. The parking garage will be one block down on your right. EMPAC is located ~200 meters further West on the right.

Parking will be available in the parking garage off of College Avenue after 5:30PM. The parking garage is halfway along College Ave which borders the South side of the campus and is approachable either from 8’th Street or 15’th Street. From College Avenue, walk westbound. Take a RIGHT onto 8th St. EMPAC is at 110 8th St, Troy, NY.

There will be signs in EMPAC directing you to Studio 2 and Evelyn’s Café.

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS
HUDSON MOHAWK SECTION
PO BOX 206
Schenectady, NY 12301

Cost:

$15 – Members and Guests (only one guest per member)
$20 – Non-Members
$10 – Students (with current College ID)

Reservations:

To reserve your seat, please contact Dr. Eric J. Ruggiero, ruggiero@research.ge.com or 518-387-4279 by ***NOON FEBRUARY 16***. E-mail contact is preferred.

Letter from the Chair

Well, you have made it to the end of this month's "double issue" of the Hudson-Mohawk (H-M) section newsletter. As you can see we have a lot going on this month, and the rest of the Winter/Spring season is just as action packed.

First, I want to acknowledge Lewis Stitt, the chair of the H-M technical subsection. Lewis invited Dr. Mohamed Gadalla, assistant professor of Mechanical Engineering at Central Connecticut State University, to speak to us about a variant of lean manufacturing concerned with non-controllable production environments, known as "agile" manufacturing. Prof. Gadalla's talk was insightful and provided a glimpse of how he believes manufacturing will trend in the future.

We have two events that the H-M section is sponsoring this month. The first is a joint event that will be held at the new EMPAC center at RPI. In addition to having the opportunity to see this state of the art teaching and performance space, we will hear Prof. Inman, who is a dynamic speaker, talk about the use of piezoelectric devices to solve practical problems. I want to thank AIAA and the Department of Mechanical, Aerospace, and Nuclear Engineering at RPI for organizing the event, and inviting us to sponsor it. The H-M section is providing financial support toward this event.

Our second February event is being held at HVCC. Dr. Heshmat's talk has been planned for nearly a year, and I look forward to hearing his thought provoking talk. The H-M section has had a relationship with the Mathematics and Engineering Science Department at HVCC for the past several years. We provide an annual scholarship to an Engineering Science graduate who goes on to an accredited Mechanical Engineering school in pursuit of a BSME. As the cost of a college education outpaces the rate of inflation, completing the first two years of a BSME at HVCC is an economical way to get a ME degree.

Lastly, I want to mention that the ASME Nanotechnology Institute is sponsoring and organizing a Global Workshop on Nanoscale Measurement Challenges for Energy Applications. The workshop is being held April 26th through the 28th at the College of Nanoscale Science and Engineering at the University at Albany. More information on this event will be provided in the March H-M newsletter. For more information now please go to the following website.

http://www.asmeconferences.org/NanoMeasurement09/index.cfm

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Distribution of Section Newsletter

The Hudson Mohawk newsletter is posted at:
http://sections.asme.org/hudson-mohawk/

Once each newsletter is posted on the Section's web page, an e-mail notification and link to the above website is sent to members who have e-mail addresses in the ASME member database. If you are an active member of ASME and did not receive an e-mail notification, please go to the ASME web site and update your membership information. Additionally, please make you're your e-mail service does not block e-mail sent from ASME.

http://members.asme.org/myasme/login/myasme.cfm