



ASME Hudson-Mohawk Section

# Newsletter

**February 2002**

*David Shapiro, Co-Editor*

*David Smith, Co-Editor*

## February 2002 National Engineers Week

**Topic:** A New Steam Turbine Test Vehicle  
For The Verification of Improved  
Efficiency Steam Turbines

**Guest Speaker:** *Larry Willey*  
*GE Power Systems*

*Rensselaer Polytechnic Institute*  
*Hefner Alumni House*  
*Troy, NY*

**Thursday, February 21, 2002**

**Social Hour: 6:00 PM**

**Dinner: 7:00 PM**

**Presentation: 8:00 PM**

<u>Tickets</u>	<u>In Advance</u>	<u>At The Door</u>
Participating Society Member	\$15.00	\$18.00
Member and Guest	\$25.00	\$30.00
Student	\$10.00	\$12.00
Non-Member	\$20.00	\$30.00

## **National Engineers Week Event**

As part of Engineers Week, local area engineering societies will be gathering at RPI for a presentation on Steam Turbines. Participating Societies include:

- American Society of Mechanical Engineers
- American Society of Aeronautics and Astronautics
- Society of Tribologists and Lubrication Engineers
- Institute of Electrical and Electronics Engineers
- American Society of Non-Destructive Testing
- Vibration Institute

### **About the Speaker**

Lawrence D. Willey is currently the manager of the Power Generation Systems Requirements department at GE Power Systems in Schenectady, NY. Larry has over 23 years of professional experience that includes aircraft gas turbine design & Development with Pratt &

Whitney, Navy nuclear propulsion projects with GE Machinery Apparatus Operation, steam turbine aerodynamic development and project management with GE Power Systems. He has spent the last few years leading a number of key initiatives including e-Engineering and Systems Requirements, also with GE. Larry received his BSME from the University of Hartford and an MSME from RPI. He holds a professional engineer license in NY, MA & CT.

### **About the Topic**

Deregulation and the ever-increasing demand for electrical power continue to drive rapid changes in the global energy market, placing higher premiums on turbine efficiency and creating the opportunity to structure new Steam Turbine products to satisfy these evolving requirements. The 'Dense Pack' high-pressure section replacement/up-rate offering is one of the newest advanced designs to address these needs by delivering more power for the least amount of fuel.

A new multi-stage steam turbine test vehicle (STTV) was created to validate the technology. The turbine faithfully models a typical 4-admission large utility steam turbine and preserves geometric and flow similarity while operating at reduced pressure. Rigorous design For Six Sigma (DFSS) processes were used to create the rig and to ensure all of the program objectives were met.

The facility will be described along with the major sub-systems, prototypical model hardware, unique steampath instrumentation, and some of the techniques used to ensure accurate, repeatable data. The timeline for accomplishing the design, construction and early testing will be chronicled. Some key test results will be summarized, including the baseline test used to validate the new test facility, testing of the "Dense Pack" design methodology, and the performance impact of new seal designs and advanced aerodynamics.

### **Directions**

From I-787 take exit 7 towards Troy-Bennington. Follow the signs for Route 7, Hoosick Street. At the fourth traffic light, turn right onto 15<sup>th</sup> Street. At the second traffic light, turn right onto Peoples Avenue. The Hefner Alumni House is one block down on the southwest corner.

## Event Details

Please RSVP before end-of-business Wednesday, February 20, 2002.

### **Contacts:**

Mike Davi 518-385-9219 [michael.davi@ps.ge.com](mailto:michael.davi@ps.ge.com)

Andrew Hunter 518-385-5633 [Andrew.hunter@ps.ge.com](mailto:Andrew.hunter@ps.ge.com)

Checks must be received by February 15 made out to:

AIAA-NENY Section. Send checks to:

Professor Luciano Castillo

Treasurer – AIAA-NENY Section

RPI

Dept. of M.E, A.E., and Mechanics

110 8<sup>th</sup> Street

Troy, NY 12180

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### **ASME International** **Hudson-Mohawk Section Officers**

Chair: Paul Kehoe (518) 475-5174 [paul.kehoe@ps.ge.com](mailto:paul.kehoe@ps.ge.com)

Secretary: Tom George (518) 395-4045

Treasurer: Mike Brilliant (518) 387-6558 [brilliant@crd.ge.com](mailto:brilliant@crd.ge.com)

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## January 2002 Technical Presentation

Approximately 25 people, including four ASME members, attended a joint meeting with the local section of the Vibration Institute. The presentation discussed the case history of a vibration problem with a centrifugal compressor at a dairy processing facility in Canada. The compressor is used to compress steam used in the evaporation process used by the dairy.

Turbotechnology Services Corporation of Scotia, NY was requested by the compressor's manufacture to travel to the dairy and investigate the vibration problem. The case started in September of 2000 when excessive vibration of the compressor was observed by the customer. Turbotechnology went to site and rebuilt the compressor. This outage resulted in getting the compressor to run - but with a higher level of vibration than what the unit had before the September incident. Over the next year, and several trips to the dairy, potential causes of the vibration were identified and eventually addressed until the unit's vibration was reduced to acceptable levels (achieved in October 2001).

Several individuals associated with Turbotechnology spoke about various aspects of the problem and how the vibration problem was eventually solved. Much of

the investigation centered on the planetary gear system used in the motor-compressor train. In the end, the coupling between the motor and compressor was most likely the largest contributor to the problem.

Following the meeting a light dinner (sandwich buffet) was served. The meeting was an excellent opportunity to meet others in this area's technical community. The Vibration Institute was pleased that ASME participated with this event and looks forward to other joint technical meetings in the future.

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## Section Chair's Message

After two years as the Hudson-Mohawk Section Chair, I am eagerly looking forward to retirement! The only problem is that we do not yet have an incoming Chair identified for the 2002-2003 Program year. The person who steps up to be the next Chair will have a lot going for him or her. The current Executive Committee is full of experienced, energetic people who make the Section Activities happen: from Monthly events, to FIRST support, to the Newsletter and the Web Page. We are fortunate to have several active past Chairs, including Seena Drapala, MJ Shaw, Sami Aslam and Lewis Stitt.

The Regional Office on Burke, Va. is very helpful and supportive, as is the ASME International office in New York City. Our counterparts in other local professional societies are eager to continue our collaborative efforts, which eases the burden of programming duties and shares the membership constituencies across societies. We should continue to grow this aspect of the Section. One thing we can do in this area is to add links to the Section web page to connect with local Universities and professional societies. We can do more in reaching out to our local Student Sections, both at Union and RPI.

I plan to continue to be active in the Section as a Past Chair, perhaps getting involved in the historical aspects of the Hudson Mohawk Section's rich heritage, or maybe the Web Page, or who knows? Next month I would like to report on our incoming Chair for the 2002 –2003 Program year. I hope to see you at the Engineer's Week meeting this month at RPI.

Regards,

**Paul Kehoe**

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## Section Web Page

Section members Govind Rengarajan and Sami Aslam are the webmasters for the Section's web site. Many of you obtained this newsletter from the website, but for

those of you who received a hard copy through the mail our Internet address is:

<http://www.asme.org/sections/hudson-mohawk/>

The website includes: Contact information for section officers, a calendar of events, section newsletters, and links to other websites that section members might be interested in. Please take a look at the website and forward your comments to:

Govind Rengarajan [rengarajan@crd.ge.com](mailto:rengarajan@crd.ge.com)

Sami Aslam [sami.aslam@ps.ge.com](mailto:sami.aslam@ps.ge.com)

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## A Bit of Humor

### Actual Doctor's Notes

These are doctor's notes on patients' charts: (Actual notes - unedited!)

- Patient has chest pain if she lies on her left side for over a year.
- On the 2nd day the knee was better and on the 3rd day it disappeared completely.
- She has had no rigors or shaking chills, but her husband states she was very hot in bed last night.
- The patient has been depressed ever since she began seeing me in 1993.
- The patient is tearful and crying constantly. She also appears to be depressed.
- Discharge status: Alive but without permission.
- Healthy appearing decrepit 69 year-old male, mentally alert but forgetful.
- The patient refused an autopsy.
- The patient has no past history of suicides.
- Patient has left his white blood cells at another hospital.
- Patient's past medical history has been remarkably insignificant with only a 40 pound weight gain in the past three days.
- Patient had waffles for breakfast and anorexia for lunch.
- Between you and me, we ought to be able to get this lady pregnant.
- Since she can't get pregnant with her husband, I thought you might like to work her up.
- She is numb from her toes down.

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## FIRST Robotics Team Update

The Capitol District Robotics Team general meetings take place at the South Colonie High School Library on Thursday evenings and start at 7 PM. We have now completed three weeks and are well under way with designing and building the robot that will be entered into

the regional competition in Connecticut. Plans are also under way for the national competition at EPCOT Center on the grounds of Walt Disney World in Orlando, FL. For updated information about the team, you can visit: [www.team250.org](http://www.team250.org). For general information about FIRST, visit: [www.usfirst.org](http://www.usfirst.org).

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## Be An Active Participant

These are some of the positions that would allow you to actively participate in Section activities. Contact Paul Kehoe for additional information.

**College Relations:** Communicate with Student Section Advisors

**Unemployed Member Coordinator:** Assist unemployed members in identifying opportunities

**Government Relations:** Communicate ASME International Agenda to Section

**History and Heritage:** Work on new ASME landmarks and other historical activities

**Honors and Awards:** Publicize local Section award winners and Fellows

**Industry Relations:** Liaison with local companies

**Member Interests:** Coordinate voting of annual Member Interest initiatives

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**Membership Development:** Contact new members entering Section

**Minorities and Women:** Promote diversity within the Section

**Professional Practice and Ethics:** Promote professional practice and interface with Region III Chair

**Professional Development:** Coordinate courses sponsored by the local Section

**Programs:** Coordinate assignments of individual monthly event sponsors

**Public Information:** Flow ASME International information down to newsletter

**Satellite Programs:** Promote ASME-sponsored satellite broadcasts

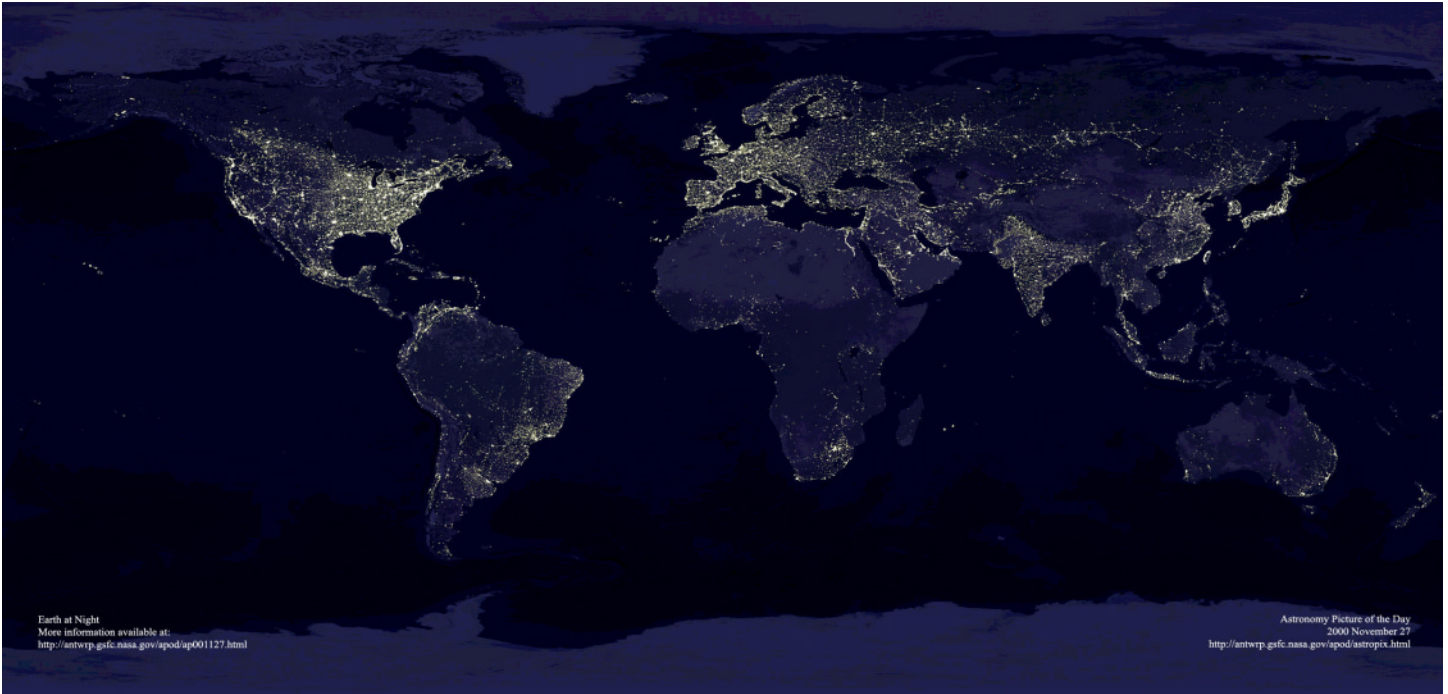
**Technical Activities:** Develop Section technical chapters (Design and Applied Mechanics)

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## It's A Small World

The photograph on the last page is a panoramic night view of the world from the new space station. It clearly shows the lights of civilization. For more information, and an interactive view of this photo, visit:

[http://antwrrp.gsfc.nasa.gov/apod/image/0011/earthlights\\_dms\\_p\\_big.jpg](http://antwrrp.gsfc.nasa.gov/apod/image/0011/earthlights_dms_p_big.jpg)



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