The Canaveral Flyer

A Newsletter of the Canaveral Section of ASME International

Vol XLV, Issue V | **APRIL 2003**

Message from the Chair…

In our last newsletter I said March was going to be a busy month for our section. Well I was wrong. It was all of March and well into April that turned out to be busy for us, that is why this newsletter is coming to you late this month! First we had our Awards banquet, then our visit by ASME International President Sue Skemp, and then our Annual Joint Dinner and Senior Design Presentation at Florida Tech, and finally attendance at the RSC/RAC in Miami! Not only has it been busy, but it has been very fulfilling and successful as well.

The Canaveral Section continues to receive praise from the Regional Level for the activities we conduct and the energy we show. We have done well in the past and have the potential to do even better in the future. What does it take to be successful? People. ASME is a volunteer organization of people who share a common interest in continuing their professional development. We are people who want to bring diversity into our careers by finding out more about our local community, region, nation, and world through other engineers and students we are introduced to along the way. We want to get involved in bringing engineering to the public through educational opportunities in the K-12 schools like science fairs, FIRST robotic, and LEGO competitions. If you are not active in the section then these are just a few of the opportunities you are missing out on.

Contact one of your Canaveral Section officers or committee members today to find out how you can get more out of your investment in ASME!

Dan Johnson

Preview of Coming Attractions

- April 19 — Rock Climbing Challenge
- April 22 — DL Lecturer Series: Dr. Zweban speaking on Application of Advanced Composites in Mechanical Engineering at FSEC (See attached flyer)
- April 28-May1 — PD Course: ASME B31.3 Process Piping
- April 28-May 1 — Space Congress
- May 13 — PD Course: Design of Bolted Flange Joints
- May 15 — Joint meeting with IEEE at FSEC
- June 17-20 — PD Course: Cryogenics Fundamentals
- June TBD — Family Get Together (location TBD)

Please see our web page for further information of these and other events coming up soon.

Canaveral Section Awrads Banquet on March 12

In our Canaveral Section, we hold an annual banquet to recognize our members who attain milestones in terms of years of membership in ASME. This year we had eight recipients hit these milestones and they were.

William F. Imre of Cocoa	25 years
Louis A. Lemire, Jr. of Merrit island	25 years
Thomas H. Rei, Ph.D., P.E. of Vero Beach	25 years
Ali Tabatabaie-Raissi, Ph.D. of Cocoa	25 years
George M. Smith of Cocoa Beach	50 years
Raymond E. Stern of Melbourne	50 years
Henry W. Mueller of Melbourne	36 years (Qualifies as Life member)
H. Lee Ross of Mims	36 years (Qualifies as Life member)

There were fourteen of us in attendance at the banquet, but unfortunately, Dr. Ali-Rassi was the only recipient able to attend that evening. Dr. Ali-Rassi of the Florida Solar Energy Center (FSEC) brought us our presentation for the evening. He spoke about the work they are doing at FSEC in regards to Hydrogen as a fuel source and the potential changes it will bring to all of us. Special Thanks to Dr. Ali-Rassi for an informative and interactive discussion!

Sue Skemp Meeting at Florida Tech on March 20

If you were not one of the 40 or so of us from Canaveral, Florida, and the Florida Tech Student Sections who met on March 20 in the Crawford Science Tower on the Florida Tech Campus to meet and talk with Sue Skemp then you certainly missed out. Sue Skemp, the current ASME International President took time to travel over from the Citrus Conference in Orlando to visit us in Melbourne. She spoke for over an hour, suffering with laryngitis and all, to tell us about changes going on at the ASME International level down to our local level. It was a very interactive meeting where questions and answers flowing in both directions. We spent a good deal of time on what ASME can do for students graduating from college and entering their careers in engineering and making the case to move on by becoming registered as professional engineers. We also spent a good deal of time on K-12 initiative and ways we can get involved and make a difference in a young person's life and perhaps get them interested in engineering. Sue had a prepared talk that we will be adding to our web page if you would like to see some of the high lights of what you missed. Thanks Sue for taking the time to come and visit us in the Canaveral Section.

Officer Elections

Each year we elect new officers to serve in the leadership roles of the section. This format gives the members a chance to vote for the slate of officers as indicated or write in another candidate of your choice from the section. This year the officers as presented by the nominating committee are:

Office	**Nominee**	**Write-In**
Chair	Dan Johnson	_____
Vice Chair	Faye Tomimbang	_____
Treasurer	Ken Cook	_____
Secretary	Will Judd	_____

Please cut out and return this portion of the ballot to:

J.Tal Webb
200 W. Crisafulli Road
Merrit Island, FL 32953

Or respond by e-mail to webbj@asme.org. Thanks in advance for your participation in our organization to make it successful!

What's Happening at Florida Tech!

I have been attending the Annual Joint Dinner Meeting and Senior Design Presentation at Florida Tech for the past three years and have to say buy far this was the best one yet. There were well over 50 people in attendance with 20 being Canaveral Section members and guests and the remaining were faculty, staff, and students.

I was humbled when the student section officers gave me a plaque for helping them for the past couple of years setting up tours, getting guest speakers, and offering advice. They are great bunch of young people and it has been an honor for me to work with them. JD Van Gilder, a recent Florida Tech Graduate and colleague of mine at Harris, will be taking over as Student Section Liaison for next year and has already hit the ground running in planning activities for the next fall and spring semesters.

The students went on to give out other awards to faculty and staff members for help they had offered over the past year. Our own Palmer Stiles was named for Instructor of the Year and in recognition of his upcoming retirement from Florida Tech at the end of this semester. The faculty then recognized several students for their accomplishments over the past year.

The Design Presentations were the hit of the evening. The first presentation topic was the Formula Car. The car has been developed using Pro-Engineer software for the design tool and fully analyzed using Mechanica. The team has built and is beginning to test the vehicle with hopes of competing over the next month. The second presentation was on the Mini-Baja car being developed for another national competition. This car was designed and analyzed using the state of the art software available at Florida Tech and is being built by the students in the on campus machine shop. They too plan on competing in the weeks to come. The third and final presentation centered on FIT-SAT 3. This is a multi-dimension project working across several engineering departments along with the School of Management. This cross functional team is developing the hardware, software, and funding to launch a small rocket and that carries a glider plane to nearly 10, 000 feet altitude where the plane is released and capture data onits glide down to Earth. This is a prototype vehicle for future Mars lander and is a very exciting project for the University.

It was a great evening and I am still getting comments from attendees on how impressed they were with the quality of the presentations the students put on and it is a credit to the students themselves as well as the faculty of Florida Tech. Congratulations to the Student Section officers on putting together an outstanding evening!

If you have any questions on getting in contact with the Student Section, please do not hesitate to contact me at either my e-mail djohns08@harris.com or by phone at 729-3686.

Space Congress

This year marks the Fortieth Anniversary of the Space Congress held annually here in Brevard. This years theme is "Linking the Past and the Future: A Celebration of Space" and will take place starting on April 28 and end on May 2. The events will take place at the Radisson Resort at the Port and will include a Youth Science Fair, panel discussions, paper presentations, a chance to meet astronauts, and a Gala to name just a few. For more information please visit their web site at http://spacecongress.org or call 321-868-1623. Hope to see you there!

Personal Notices from ASME Canaveral Section

- We are saddened to report the recent death of Tom Goldcamp, our 50+ yr. member and a true pioneer in the space program who helped design the Army Ballistic Missile Agency's Launch Facilities for the Redstone and Alan Sheppard's launch vehicle among other contributions to engineering.
- Congratulations to Past Chair Keith Conaughty on his recent marriage to Deveney.
- Congratulations to Hugh and Keitha Bain on the birth of their new baby girl Kayla Roen who was born on April 9 at 9:05 PM. Kayla weighed in at 9 pounds and was 20.5 inches long!

RSC/YEF/RTC/RAC

This alphabet soup of acronym's is what three of us from the section had the pleasure to take part in April 4 through 6 in Miami. Leanna Konowicz (Membership), Faye Tomimbang (Treasurer) and Dan Johnson (Chair) traveled down on Friday to take part in the Regional Student Conference (RSC) where students and Student Section Advisors from around Region XI come and interact. There are Oral Presentations, Poster Competitions, Web Page Design Competitions, and culminating in an elaborate Design Competition. Joao Norona from Florida Tech won best Technical Presentation in his division, but did not make it to the final three where the winner gets to present at Congress in Washington this November. There were 14 schools represented in the design competition where this years theme was "Moving On Up". Each team had to design a mechanism to pull simulated ore (rice) up an incline and dump it automatically into a catch basin. Teams had two timed trials to get as much rice up the ramp in that shortest time. The winning design was the "High Roller" from University of South Alabama.

We also sat in on the Young Engineer's Forum (YEF) where students get real world practical advice about their careers in Engineering, learn about future trends, and learn about benefits ASME offers. The Regional Technical Conference (RTC) is where graduate students and new grad's come to present research they are involved in.

Finally we got together with representatives from most of the other sections in our region for the Regional Administrative Conference (RAC). Here we exchanged ideas on what has worked good and not so good in our sections over the past year. We get a chance for training at the meeting as well and this year our own Scott Seigel was the instructor for a course on Diversity in our organization that was very interactive and enlightening. Congratulations Scott on doing a fine job in presenting the course material! We also had an opportunity to talk with representatives from ASME International on how they can provide services to the local sections. This was the last RAC for outgoing Region VP K.R. Rao. We wish him well as he moves into an advisor role for incoming VP Lee Crawford.

These events give us a chance to interact amongst our peers in ASME and give us the tools we need to make our section stronger. We presented our idea for reorganizing our section into more of a committee format instead of individual "Chairs". We felt there was overlap in key area and that we can become more effective and grow our sections leadership base by moving in this direction.

Treasure Coast S.E.A.

The SEA March meeting was held at the Gifford Youth Activities Center in Vero Beach. Our tour guide gave us a history of the center, the funding (almost completely privately funded), and then led us on a tour of the facility. This center provides classrooms, computer laboratories, a library associated with the Indian River County library system and a full-size gymnasium convertible for basketball, volley-ball and concerts. Adjacent to the center is an outdoor swimming pool with swimming lanes, wheelchair access sloping entrance, water fountains and wading pools. Of special interest to us mechanical was the pool heating system. The pool is heated using a geothermal heating system. Water is pumped from underground water sources, heat is extracted for pool heating and the water is returned underground. Nothing is added or removed from the water except heat.

For our April meeting we will have a speaker from Hill Inc. from Melbourne FL. Hill produces machines that are used to make synthetic fibers used in the textile industry. These fibers allow the textile industry to make fabrics and simulated leather. The speaker will explain how the machines work and illustrate some of the fibers that they produce.

The meeting will be held on Friday, April 18 at The Council on Aging Conference Room, 688 14th St., Vero Beach at 10:00AM. For further information contact SEA Board Member Kelly Mather, 772-589-6287.

We wish our chairman, Ed Holden, a quick recovery on his lung surgery.

For further information contact Chair Ed Holden 772-567-6027 (edwholden@aol.com), Frank Iaccarino 772-569-7030, or Maurice Hoyt at hoytmo@aol.com.

ASME B31.3 Process Piping
April 28 - May 1, 2003
ASME Canaveral Section Professional Development Course

WHAT YOU WILL LEARN

The lack of commentary, or historical perspective, regarding the B31.3 Code requirements for process piping design and construction is an obstacle to the designer, manufacturer, fabricator, supplier, erector, examiner, inspector, and owner who wants to provide a safe and economical piping system. This intensive four-day course, through the use of hundreds of examples shown and personal experiences of the instructors demonstrates how the B31.3 Code has been correctly and incorrectly applied. This seminar explains the principal intentions of the Code and why the Code is not a handbook. Attendees come away from this seminar with a clear understanding of how piping systems fail and what the Code requires the designer, manufacturer, fabricator, supplier, erector, examiner, inspector and owner to do to prevent such failures.

The focus of the seminar is to enhance participants' understanding and application of the B31.3 Code. Instruction is further enhanced by in-class problem solving, directly applying the rules and equations of the B31.3 Code for specific design and operating conditions to illustrate correct applications.

WHO SHOULD ATTEND

Piping engineers and designers who need an understanding of the requirements for compliance and the trends of Code changes for piping design and analysis, fabrication, examination, and testing.

SPECIAL REQUIREMENTS

Bring the latest edition of the *ASME B31.3 Process Piping Codebook* as well as a calculator.

COURSE HIGHLIGHTS

- Piping code history and basic philosophy of piping design criteria
- Pressure design: wall thickness calculation; area replacement
- External loads design: flexibility; fatigue; stress intensification factors; combined loads (sustained wind, earthquake); cold spring
- Pipe support design: support types; assumptions; load combinations; variable supports; lugs and attachments
- Systems piping: pressure relief, piping; pipe and piping component limitation
- Materials, fabrication, examination, inspection and testing

ABOUT THE INSTRUCTORS

Glynn E. Woods, P.E., Course Director, is a consultant with experience in piping design, stress, supports, and failure analysis as well as piping component design, analysis and testing. For more than 20 years, he has been providing this expertise for both new and operating petrochemical and power plants using computer evaluations and field experience in arriving at safe, economical piping designs and solutions to piping problems. Mr. Woods is a member of ASME B31.3 Process Piping Committee and the ASME B31 Mechanical Design Committee.

Ronald W. Haupt, P.E., is a Consulting Piping Engineer and Founder of Pressure Piping Engineering Associates, Inc. He has over 40 years of professional experience in the design and analysis of industrial process and energy-related structures, equipment, piping, pipelines, and supports. Mr. Haupt is a member of the ASME B31 Pressure Piping Standards Committee, the B31.1 Power Piping Section Committee, B31.3 Process Piping Section Committee and other ASME national codes and standards committees.

This course will be conducted by either Glynn E. Woods or Ronald W. Haupt.

4 Days/2.8 CEUs/28 PDHs
$1,195 ASME Member/ $1,295 Non-Member

Call Scott Seigel @ 407-736-7839 or 1-800-843-2763 (1-800-THE-ASME) to Register.
Class Location: Cocoa Beach Hilton

DESIGN OF BOLTED FLANGE JOINTS
May 13, 2002
ASME Canaveral Section Professional Development Course

WHAT YOU WILL LEARN
The design and analysis of flanged joints are essential components for pressure containment. The purpose of this course is to provide a fundamental understanding of the design and behavior of bolted flange joints. You will learn the latest developments from the Pressure Vessel Research Council research on gasketed flange joints, as well as the new design rules being developed for the ASME Codes.

Upon completion of this course you will be able to:
- Identify ASME requirements and methodology for flange design
- Design and analyze flange joints for pressure and external loads in accordance with the latest ASME Codes and Standards
- Identify the parameters that can affect flange leakage
- Discuss fundamentals of flange and gasket behavior

WHO SHOULD ATTEND
Engineers involved in the design, construction or maintenance of pressurized equipment utilizing flanged joints for the petroleum, refining, chemical, power, and process industries

SPECIAL FEATURES
- Receive the textbook, *Gaskets and Gasketed Joints,* by John H. Bickford
- Computer analysis illustrating the behavior of flanged joints under mechanical and thermal loads
- Examples on troubleshooting field problems

COURSE HIGHLIGHTS
Codes addressing flange design: discuss how the various Code sections address the design of flange joints and the applicability of flange standards
  - Vessels: ASME Section VIII, Div 1, Div 2; Section I; Section III
  - Piping: ASME B31.3, B31.1, B31.4, B31.8

Flange standards: discuss the ASME flange standards, their basis, applicability and how they are used within the structure of the ASME Codes and Standards
  - ASME B16.5
  - ASME B16.47 (API, MSS)

Strength design methods
  - Raised face flanges: ASME design methodology and basis

Flanges with metal-to-metal contact outside of the bolt circle: ASME design methodology and basis
  - Flanges with full-face gaskets: published methods for design
  - Design for external loads: discuss various methods of designing for external loads

Design for leakage
  - PVRC method: background and basis of the PVRC research on flange design for leakage including ASME design methodology and basis
  - New proposed code rules: overview of the new ASME design rules currently under development

Flange joint analysis
  - Methods of flange joint analysis, interaction between the flange, bolts, and gasket
  - Behavior of flange joints: apply principles discussed by the use of a computer program

Examples: troubleshooting field problems

ABOUT THE INSTRUCTOR
William Koves, Ph.D., P.E., is a Senior Engineering Fellow at UOP, a technology company. He is a member of numerous ASME and PVRC committees including ASME B31.3 Process Piping Design Task Group (Vice Chair), ASME Post Construction Subcommittee on Flaw Evaluation (Chair), ASME B31 Mechanical Design Committee, ASME Boiler and Pressure Vessel Subcommittee on Design Analysis, Pressure Vessel Research Council (PVRC) Vice Chair, PVRC Committee on Piping and Nozzles, PVRC Committee on Elevated Temperature Design (Chair), and PVRC Subcommittee on Shell Intersections (Chair).

Dr. Koves has over 30 years of experience in the design and analysis of equipment and structures including aircraft, nuclear reactors, and petrochemical equipment. His specialties include stress analysis, fracture, elevated temperature design, heat transfer, stability, vibration, fatigue, fluid mechanics, and mechanics of granular solids.

1 Days/0.75 CEUs
$475.00 ASME Member/$575.00 Non-Member
Contact Scott Seigel @ 407-736-7839 to Register or call 1-800-843-2763 (1-800-THE-ASME)

CRYOGENICS FUNDAMENTALS

June17-20, 2003

ASME Canaveral Section Professional Development Course

This course reviews the development of the field of cryogenics along with a presentation of some of the present day low temperature applications. It will familiarize you with the behavior of common engineering materials as well as the behavior of commonly used cryogenic fluids. Illustrations of cryogenic liquefaction systems are featured as are, systems for the production of liquid hydrogen and liquid oxygen. This course will show how the components of air (and in particular, oxygen) may be separated to produce the almost pure liquids. In addition, some techniques which may be used to purify gases are presented.

Learn how to use ASME Code design methods for cryogenic fluid storage vessels (dewars) and piping systems. Review the development of cryogenics, this course gives you in-depth coverage of cryogenics using real world applications.

SPECIAL FEATURE

You will receive a copy of the textbook *Cryogenic Systems*, 2nd Ed., by Randall F. Barron. and comprehensive notes based on course content.

WHO SHOULD ATTEND

Mechanical and Chemical Engineers, who wish to receive an up-to-date overview of the various areas in cryogenic engineering.

COURSE HIGHLIGHTS

- **MATERIAL PROPERTIES AT CRYOGENIC TEMPERATURES**
  The behavior of common engineering materials at low temperatures. Selection of proper material for various cryogenic uses Fluid Properties and Behavior of commonly-used cryogenic fluids.
- **GAS LIQUEFACTION SYSTEMS**
  Cryogenic liquids production characteristics of various liquefaction systems including systems for the production of liquid hydrogen and liquid oxygen.
- **SEPARATION AND PURIFICATION SYSTEMS**
  An examination of how the components of air (and in particular, oxygen) may be separated to produce the almost pure liquids. In addition, techniques used to purify gases are presented. Techniques for the separation of hydrogen are discussed.
- **CRYOGENIC REFRIGERATION SYSTEMS**
  A review of the various refrigerators used to maintain low temperatures. some refrigerators used in very low temperature applications, such as cooling in particle accelerators, etc. are also presented.
- **MEASUREMENT SYSTEMS FOR LOW TEMPERATURES**
  Techniques used to make measurements at low temperatures, including the measurement of temperature, mass flow rate, and liquid level in containers.
- **CRYOGENIC FLUID STORAGE AND TRANSPORT SYSTEMS**
  Design methods used in ASME Code design of cryogenic fluid storage vessels (dewars) and cryogenic piping systems. Special problems, such as two-phase flow and transfer line cool down will be examined.
- **VACUUM TECHNOLOGY**
  Examination of the systems used to produce the vacuums used in cryogenic systems. The design techniques for vacuum systems will be illustrated.

ABOUT THE INSTRUCTOR

Randall F. Barron is Professor Emeritus, Mechanical Engineering at Louisiana Tech University. Dr. Baron teaches at the undergraduate and graduate levels in the areas of Thermodynamics, Heat Transfer, Cryogenics, Solar Energy, Acoustics and Heat Exchanger Design. He has also conducted research in the areas of Cryogenics, Heat Transfer and Materials.

4 days/2.8 CEUs/28 PDHs
$1175 ASME Member/$1275 Non-Member

Contact Scott Seigel @407-736-7839 or call 1-800-843-2763 to Register.
Class Location: Cocoa Beach Hilton

American Society of Mechanical Engineers
Canaveral Section
April Dinner Meeting Event
Dr. Carl Zweban, ASME Distinguished Lecturer

"APPLICATION OF ADVANCED COMPOSITES IN MECHANICAL ENGINEERING"

What:

- We will survey the four key classes of composites: polymer matrix composites (PMCs), metal matrix composites (MMCs), ceramic matrix composites (CMCs), carbon matrix composites (CaMCs), which includes carbon/carbon composites (CCCs).
- We consider revolutionary new PMC, MMC, CMC and CCC materials developed for electronic packaging and thermal control, which have thermal conductivities as high as five times those of copper combined with low coefficients of thermal expansion.
- We discuss key manufacturing processes, and present a remarkable video showing how Honda makes MMC engine blocks.
- We look at important future trends, including low cost materials and processes, and Mechanical Engineering and infrastructure applications.

When:

Tuesday, April 22, 2003 at 6:00 PM

Where:

Florida Solar Energy Center (FSEC)
1679 Clearlake Road, Cocoa
(In Front of BCC Cocoa Campus)

What It Is & Why You Should Come:

- The Distinguished Lecturers Program provides opportunities for ASME members and guests to meet with outstanding engineering researchers and practitioners.
- Local presentations bring researchers at the leading edge of their technology into close contact with working engineers, scientists and students.
- Networking opportunity

What's for Dinner:

- Barbeque Pork & Beef, potato salad, cole slaw, and baked beans
- Cost $10.00 per Member/non-Member and $5.00 per student

Contact Information:

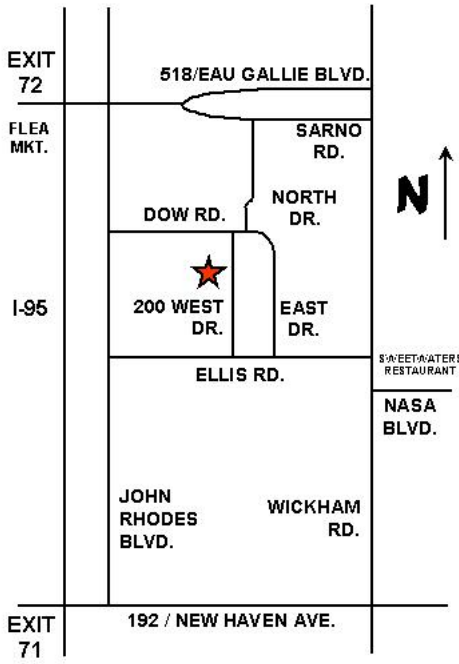
Dan Johnson (djohns08@harris.com) Phone: 321-729-3686

ASME *is a worldwide engineering society focused on technical, educational and research issues, with 120,000 members including 20,000 students. It conducts one of the world's largest technical publishing operations, holds more than 30 technical conferences each year, and sets many industrial and manufacturing standards.*

ASME's ROCK-CLIMBING CHALLENGE

You, your family, and friends are invited to the ASME Canaveral Section*

Rock-Climbing Challenge.



WHEN: April 19th, 2003 (Saturday)
3:30 - 5:30 p.m.

WHERE: On the Edge Rockclimbing Gym
Melbourne, FL

COST: $13 per person (2 hours)
(Includes Harness and Instruction)

RSVP: RSVP by April 17th ...
Faye Tomimbang - 321-784-0412
E-mail: Faye_mt@hotmail.com

***No minimum age. Children under the age of 18 yrs will need to have guardian/ parent present to sign liability forms OR have liability forms w/ guardian signature notarized.**

AMERICAN SOCIETY OF MECHANICAL ENGINEERS

CCTS
P.O. Box 245
Cape Canaveral, FL 32920