



**THE AMERICAN SOCIETY OF MECHANICAL ENGINEERS®**

Central Oklahoma Section Newsletter  
Volume 16, Number 8, April 14, 2015

The Section is located at: Oklahoma Engineering Center, 220 Northeast 28<sup>th</sup> Street, Oklahoma City, OK 73105

The Central Oklahoma Section Newsletter is nominally published nine times per year to convey monthly meeting dates, meeting topics, section activities, and/or other ASME information to its membership.

**\*\*\*\*\* HONORS & AWARDS MEETING WITH THE OKLAHOMA AIAA SECTION \*\*\*\*\***

**SPEAKER:** **Ms. Verna L. Martin**, Associate Director of Secondary Schools and Reform, Oklahoma City Public Schools and **Ms. Kathleen (Kate) Haydon**, Career Academy Coordinator, Oklahoma City Public Schools

**TOPIC:** "Oklahoma City Public Schools (189), High School Career Academies & Academies of Engineering"

**DATE:** Thursday, April 23, 2015      **LOCATION:** OSU-OKC Campus, Student Center (SC), Third Floor Conference Room South, 900 N. Portland Ave., OKC

The Oklahoma City Public Schools (OKCPS) have developed *Career Academies* so students can study and experience career choices including health sciences (NE Academy, U.S. Grant, NW Classen), financial services (John Marshall), law & criminal justice (Douglass), hospitality & tourism (Star Spencer), information technology (Okla. Centennial), and engineering/technology (NE Academy and Capitol Hill).



These career academies are guided by the National Academy Foundation (NAF) whose movement is to prepare young people for college and career success. For over 30 years, NAF has refined a proven educational model which includes industry-focused curricula, work-based learning experiences, and business partner expertise from five themes: Finance, Hospitality & Tourism, Information Technology, Engineering, and Health Sciences.

Please join us to learn of the great work these OKCPS educational academies provide. We'll also have Honors & Awards to recognize ASME and AIAA award recipients. Plan to join us on April 23!

Attendees will receive 1-PDH Continuing Education credit!

**Time:** 5:30 - 6:00PM: Meet & Register at OSU-OKC.      6:00 – 6:30PM: Introductions & Catered Meal  
 6:30 – 6:45PM: Awards Presentations      6:45 – 7:45PM: Presentation by Ms. Martin & Ms. Haydon

**Cost:** \$10 for ASME Sr. members and Guests, \$5 for ASME Student Members. Please place your reservation with Albert Janco (Ph: 405-848-1991 (leave message); e-mail: JANCOA@asme.org) by Tuesday, April 21 at NOON. PLEASE furnish the name of each person attending and their affiliation (ASME, AIAA, etc). If a student, please indicate school/university. If a P.E. please indicate if a PDH certificate is desired.

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		<b>Rick Beier, Ph.D.</b> ..... OSU-MET Bus: 405-744-9371 ; <a href="mailto:rick.beier@okstate.edu">rick.beier@okstate.edu</a>

## ADDITIONAL APRIL MEETING INFORMATION

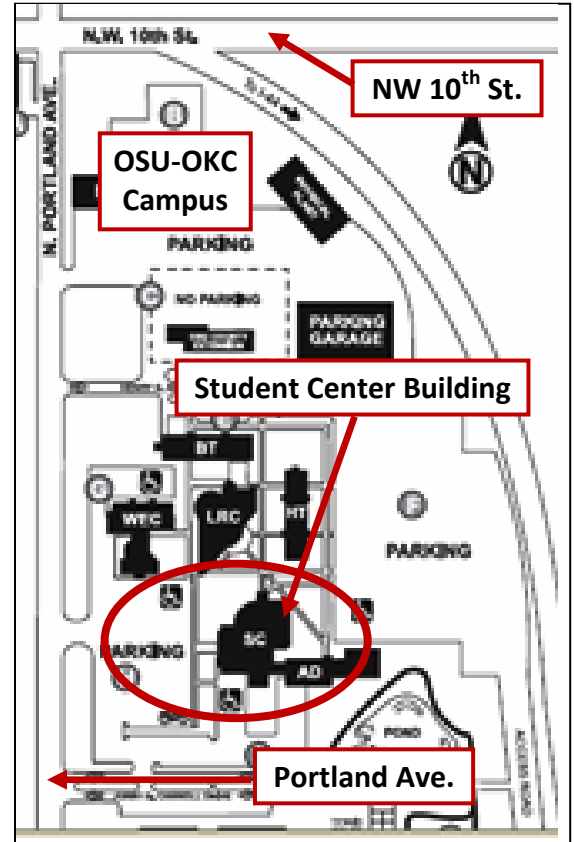


### What is a career academy?

Career academies exist as a school within a school. Students within the academy take several classes together as a cohort and are enrolled in a series of career themed courses over four years. As a part of the academy, students participate in real world learning experiences through job shadowing and internships experiences. Career academies are supported by strong business and industry partnerships.

NE Academy's Enterprise School focus is below. Capitol Hill H.S.'s Enterprise School has the same types of objectives.

- Academic Achievement
- Mentoring and Tutoring
- Achievement Test Prep (ACT, SAT, PSAT)
- College/Career Prep
- Scholarships
- Science, Engineering and Art Fair



## ASME Central Oklahoma Section Awards APRIL MEETING HONORS & AWARDS

### Membership Recognition:

The ASME Central Oklahoma Section is pleased to announce that five of our members have reached significant milestones in their professional careers. These members have been presented with certificates and rockers for their ASME pins in recognition of their years of membership in ASME:

**25 Years:** M. Cengiz Altan, Ph.D., **Fellow:** Tom Hurley, Member; Ramkumar N. Parthasarathy, Ph.D., Member; Frank L. Sands, P.E., Member; Jeffrey D. Spittler, Ph.D., P.E., Member

**Congratulations to these members for their continued membership, support, and many contributions to ASME!**

### Student Recognition:

The ASME Central Oklahoma Section is also very pleased to recognize four ASME student members at our April Honors & Awards meeting. Student awards to be presented are:

- The **Jerald D. Parker Award** to honor the outstanding **Oklahoma Christian University** ASME student member,
- The **Tom J. Love Award** to honor the outstanding **University of Oklahoma** ASME student member,
- The **James H. Boggs Award** to honor the outstanding **Oklahoma State University-MAE** ASME student member,
- and the **Outstanding Student Award** to honor the outstanding **Oklahoma State University-MET** ASME student member.

**Please attend our April Honors & Awards meeting and celebrate these students' fine accomplishments!**

**ELECTION RESULTS: 2015-2016 ASME-COS OFFICERS**

Below are results from our recent ASME-COS officer election process.

Many thanks to all who have offered to serve our Section!

Chairman: Tom Betzen, P.E.

First Vice-Chairman: Doug Brown, P.E.

Treasurer: John McCachern, P.E.

Secretary: Frank Chambers, Ph.D., P.E.

Vice-Chair, Programs: Albert Janco, P.E.

Vice-Chair, Membership: Albert Janco, P.E.

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Robert Rucker ; John Heaton, P.E., Ed Reynolds, P.E.



### XXXV Oklahoma AIAA/ASME Symposium

**Saturday, April 18, 2015**

Engineering North and Advanced Technology Research Center

Oklahoma State University campus, Stillwater

The 35th Annual Oklahoma AIAA/ASME Symposium will be held at Oklahoma State University on the OSU campus in Stillwater on Saturday, April 18, 2015. The event will be held in the Advanced Technology Research Center (ATRC) and Engineering North (EN). The purpose of the symposium is to encourage communication among the engineers of Oklahoma's universities and industries.

Sixty presentation abstracts have been submitted and we are looking forward to an excellent event. See the presentation listing on the following pages. **PLEASE ATTEND AND SUPPORT THESE STUDENTS AND PRACTICING ENGINEERS!**

The registration fee is only \$5 for students and \$15 for working professionals. The symposium will begin with registration, coffee, and donuts outside Engineering North 108 at 8:00 am followed by a welcome at 8:45 am in EN 108. There will be parallel technical sessions from 9:00 to 10:15 and 10:30 to 12:15 with a coffee break from 10:15 to 10:30. Boxed lunches will be served outside ATRC 102 at 12:15.

Dr. Charles E. Baukal, Jr. of John Zink Hamworthy Combustion will provide the Symposium keynote address with a talk titled "Industrial Combustion R&D Challenges" in EN 108. The Symposium will end by 2:00 pm.

We have internet links to more information, including a luncheon reservation contact, maps, speaker instructions, a schedule, and a registration form on the OSU MAE web site at: <http://www.mae.okstate.edu/>

The registration form is on the web site to fill out and bring to the Symposium. There is no pre-registration, but we need to know how many are attending so that we can get a good count for regular and vegetarian lunches. Please email a luncheon reservation to the address on the web site. We encourage you to attend!

[Many thanks to Dr. Frank Chambers for his outstanding work in organizing and hosting this event!](#)

**35th Oklahoma AIAA/ASME Symposium PRESENTATION TITLES**

- "Surface Dielectric Barrier Discharge (SDBD) As An Alternative For Atmospheric Pressure Plasma Sterilization," Kedar Pai , Chris Timmons, Shannon Jiang, Li Ma, Jamey D. Jacob, OSU
- "Bat Ear Aerodynamics: Preliminary Results From Flow Visualization Over Ears With And Without Tubercles," Christopher E. Petrin, Brian R. Elbing, Monte L. Thies, William Caire, OSU
- "Currents Induced By Upside-Down Jellyfish: Effects Of Bell Size And Interactions With Background Flow," M. Gaddam, M. Takyi-Micah, A. Santhanakrishnan, OSU
- "Comparative Study of Diastolic Filling Under Varying Left Ventricular Wall Stiffness," P. Mekala, A. Pope, A. Santhanakrishnan, OSU
- "Comparative Dynamics of Perching Birds For UAV Advancement," Jonathan Mitchell, Stephen Ziske, Jamey Jacob, OSU
- "Experimental Investigation of Metachronal Paddling," M. Samaee, H. K. Lai, A. Santhanakrishnan, OSU
- "Clap-And-Fling Aerodynamics In Tiny Insects Using Bristled Wings," C. L. Terrill, A. Santhanakrishnan, OSU
- "Development of Simulation For Use In Predicting Drug Metabolism," C. German, S. Madihally, OSU
- "Mathematical Modeling of Biodistribution Of Nanoparticles In The Kidney," M. Pilvankar, A. N. Ford Versypt, OSU
- "Comparison of Various Techniques Of Determining The Wettability Of Materials," L. Baghernejad, E. Iski, R. Mohan, TU
- "Gas-Liquid Two Phase Flow In Downward Inclined Pipes," S. M. Bhagwat, A. J. Ghajar, OSU
- "Characterization of Drag-Reducing Polymer Solution Used To Modify A Turbulent Boundary Layer," Yasaman Farsiani, Brian R. Elbing, OSU
- "Mass Transfer and Bubble Size In A Vibrating Bubble Column Reactor," Shahrouz Mohagheghian, Afshin J. Ghajar, Brian R. Elbing, Adam Still, OSU
- "Shear Effects On Droplet Size Distribution In Oil-Water Flow," M. Zhang, S. Wang, R. Mohan, O. Shoham, Haijing Gao, TU
- "Solid Particle Transport In Gas-Liquid Stratified Slurry Flow," A. Padsalgikar, R. Mohan, O. Shoham, TU
- "Investigation of Foam Break-Up In A Cfc/Glcc© System," A. Nababan, R. Mohan, O. Shoham, G. Kouba, TU
- "Mechanistic Modeling And Experimental Validation Of Droplet Deposition And Coalescence In Long Elbow Bend," H. Nguyen, S. Wang, R. Mohan, O. Shoham, G. Kouba, TU
- "Sand Flow Regimes In Multiphase Pipelines," R. Dabirian, R. Mohan, O. Shoham, G. Kouba, TU
- "A Simulator To Characterize The Shear Effect Of Production Equipment," S. Cui, S. Wang, R. Mohan, O. Shoham, Haijing Gao, TU
- "The Effect of Surfactant Concentration On Rheological Behavior Of Oil-Water Emulsion," Kamyar Najmi, Ram S. Mohan, TU
- "General Guidelines To Develop A Model To Predict Sand Transport Threshold Velocities In Multiphase Horizontal Pipes," Kamyar Najmi, Brenton McLaury, Siamack Shirazi, Selen Cremaschi, TU
- "Fire Suppression Simulation Study," Kshitij V. Deshmukh, CD-Adapco
- "Hacking The Cosmos: How Engineering Assists Science And The Humanities In Making Sense Of The Universe," Dominic M. Halsmer, ORU
- "Designing A Cost Efficient and Effective Solar Cooker," T. Adams, M. Ng, ORU
- "Automated Gram Staining Apparatus," D. Rykert, M. Mathew, G. Toby, ORU
- "Stator Use On Vertical Axis Wind Turbines," Aaron Alexander, Arvind Santhanakrishnan, OSU
- "Experimental Study of Plasma Jet Produced By A Circular Tube Fitted With A Nozzle," I. W. Brindle, F. C. Lai, OU

- "Concentration Measurements of Oh and Ch Radicals In Laminar Partially Premixed And Pre vaporized Jet-A And Palm Methyl Ester Flames," A. Balakrishnan, R. N. Parthasarathy, S. R. Gollahalli, OU
- "Ditch Witch Vacuum Excavator," Zac Blumer, Ditch Witch
- "Collaborative Goal And Policy Learning From Human Operators Of Construction Co-Robots," H. Maske, M. Matthews, A. Axelrod, H. Mohomadipannah, G. Chowdhary, C. Crick, P. Pagilla, OSU
- "Hierarchic Nonparametric Kernel Method for Rapid Modeling Of High Spatiotemporal Scale Dynamical Systems," H. Mohamadipannah, G. Chowdhary, OSU
- "A Framework for Navigation Based On Familiarity," Alex Suhren, Mehran Andalibi, Girish Chowdhary, Christopher Crick, Doug Gaffin, Brad Brayfield, OSU
- "Development of A Robotic Device For Infant Physical Therapy," M. A. Ghazi, M. D. Nash, OU
- "Control of A Robotic Device For Infant Physical Therapy," M. A. Ghazi, M. D. Nash, OU
- "Long Board Deck Manufacturing," Daniel Dickie, Charles Tines, ORU
- "Melt Expulsion During The Ultrasonic Vibration-Assisted Laser Surface Processing," S. Habib Alavi, Cody Cowell, Sandip P. Harimkar, OSU
- "Thermoset-Cross-Linked Lignocellulose: A Moldable Plant Biomass," Sriharsha Karumuri, Salim Hizioglu, A. Kaan Kalkan, OSU
- "Development of Significantly Grain Refined Ti-6Al-4V Alloys Using Ultrasonic Vibration Assisted Laser Surface Melting," Sourabh Biswas, Sandip P. Harimkar, OSU
- "Laser Processing of Multilayered Fe-Based Amorphous Coatings On Steel," Tanaji Paul, S. Habib Alavi, Sandip P. Harimkar, OSU
- "Laser Surface Alloying of Transition Metals With Aluminum To Enhance Corrosion Resistance," Hitesh D. Vora, OSU
- "Experimental Study On Chatter Stability In Vibration Assisted Milling Process," Anju Poudel, Xiaoliang Jin, OSU
- "Experimental Study On The Surface Generation In Vibration Assisted Micro-Milling Of Glass," Xiaoliang Jin, Boyuan Xie, OSU
- "Accounting For Uncertainty And Sustainability In The Realization Of Multistage Manufacturing Processes," J. Milisavljevic, M. Robayo, J. K. Allen, S. Commuri, F. Mistree, OU
- "Characterization Of A Pulsating Drill Bit Blaster," Nick Thorp, Geir Hareland, Brian R. Elbing, OSU
- "Direction-Biased Acoustic Metamaterial Waveguide," Prateek P. Kulkarni, Vishnu Paidimarri, Barrett Lee, James M. Manimala, OSU
- "Metamaterial-Inspired Structure For Improved Low-Frequency Acoustic Noise Mitigation," Anuj Rekhy, Ryan Aiken, James M. Manimala, OSU
- "Development of A Compact Atmospheric Infrasonic Measurement System For Early Detection Of Tornadoes," Arnesha Threath, Brian R. Elbing, OSU
- "An Optimization-Based Structural Health Monitoring Technique Using Experimental Sensitivity Functions," Chulho Yang, Young Bae Chang, OSU
- "Overview of Corken Vane Pumps," Curtis M. Vickery, Corken, Inc.
- "Photodegradation of Epoxy Polymers," Sriharsha Karumuri, Salah U. Hamim, Raman P. Singh, A. Kaan Kalkan, OSU
- "Graphene Dispersion for Polymer Precursors," V. Shabafrooz, S. Bandla, J. C. Hanan, OSU
- "Localized Plasmon Modes In Ag Nanohemispheres," Ç. Özge Topal, Hamzeh M. Jaradat, Sriharsha Karumuri, Alkim Akyurtlu, A. Kaan Kalkan, OSU
- "V2O5-H2O/Au Nanowire/Nanoparticle Conjugates for Solar Water Splitting," Sunith Varghese, A. Kaan Kalkan, OSU
- "Ag-Nylon Nanocomposites By Dynamic Emulsion Polycondensation," Linqi Zhang, Sriharsha Karumuri, Habib Alavi, Sandip P. Harimkar, A. Kaan Kalkan, OSU

"Triaxial Electrospun Fibers And Role of Solvent Volatility," Abdurizzzgh Khalf, Sundar Madihally , OSU

"Experimental And Theoretical Investigation of Non-Fickian Moisture Absorption Of Nanoclay/Epoxy Composite Laminates," G. E. Guloglu, M. C. Altan, OU

"Effect of Processing Conditions On Hydraulic Fluid Absorption Of Quartz/Bmi Composites," Keith R. Hurdelbrink II, Gorkem E. Guloglu, Jacob P. Anderson, Zahed Siddique, M. Cengiz Altan, OU

"Investigating Morphology, Internal Structure, and Tensile Properties Electrospun Polyacrylonitrile Nanofibrous Yarns," Bipul Barua, Mrinal C. Saha, OU

"Sub-Band Engineering Through Superlattice Based Barrier Heterostructures For Higher Thermoelectric Efficiency," M. Pourghasemi, J. Garg, OU

"Effect of Electric Field And Flow Rate On Fiber Diameter Distribution And Tensile Properties of Electrospun Polyacrylonitrile Nanofibrous Yarns," Bipul Barua, Mehmet S. Demirtas, Mrinal C. Saha, OU

"High Thermal Conductivity of Aligned Polymers," M. Saeidijavash, M. C. Saha, J. Garg, OU

### **HELP NEEDED TO CRITIQUE OU-AME STUDENT PROJECT PROCEDURES**



Dr. Diana Bairaktarova is an ASME member and Assistant Professor of Engineering Practice in the OU Aerospace and Mechanical Engineering department. She is in the process of evaluating results from a study and needs our help!

The focus of her study is on different ways engineering students learn:

- One of the activities for the study is asking first-year engineering students to write an assembly procedure for building a solar boat. \
- Part of the study assessment is to have professional engineers evaluate the students written procedures.

Dr. Bairaktarova needs 10 engineers to evaluate the students' procedures. Each engineer will have 30 procedures. The assembly procedure is less than a page and will not take a person more than an hour to evaluate 30 procedures. She has an example of an assembly procedure with 1 - 5 grading scale and only three evaluating criteria.

She has collected relevant data and is ready to communicate all details with engineers prior that are willing to help. Her plan is to begin the analysis in February with completion by mid-February.

Please contact Dr. Bairaktarova if you would like to help! Her web access is listed with:  
<http://www.ou.edu/content/coe/people.html> or e-mail [diana.bairaktarova-1@ou.edu](mailto:diana.bairaktarova-1@ou.edu)

### **NEWS ITEMS OF INTEREST**

#### ***Hydraulic Fracturing Experts Discuss Trends and Technology at ASME Conference***

(courtesy ASME News [asmenews@asme.org](mailto:asmenews@asme.org) Vol. 34 No. 6 / March 31, 2015 (abridged for content))

(<https://www.asme.org/about-asme/news/asme-news/hydraulic-fracturing-experts-discuss-trends>)

More than 300 oil and gas industry professionals convened in March at the ASME 2015 Hydraulic Fracturing Conference in Houston to discuss current and emerging technologies for extracting oil and gas from shale rock plays and to examine hydraulic fracturing's role in the petroleum industry given the current economic environment.

The conference featured 14 technical sessions from companies and agencies representing the entire supply chain — from the drilling of horizontal wells for recovering oil and gas to well completion — including BP, Schlumberger, Baker Hughes, Marathon Oil, among many others.

“Major advancements in unconventional oil and gas production are intersecting with the most amazing technological advances at this time in history,” ASME President J. Robert Sims observed during his opening remarks. “This conference is a very important link in the chain that connects ideas and concepts to the technology developments that are essential to the safe, reliable, environmentally responsible and cost-effective production of energy to improve the standard of living of

people worldwide. Your work in hydraulic fracturing can make significant contributions to the economy, to the development of supplier industries, and to addressing the social issues that helps earn public trust in these technologies, which is essential to moving forward.”

Following President Sims’ introduction, David Miller from the American Petroleum Institute, Paula Gant from the U.S. Department of Energy, and David Porter of the Texas Railroad Commission, kicked off the conference with the keynote session, “Unlocking Unconventional Resources,” where they discussed hydraulic fracturing’s impact on the U.S. petroleum industry.

Miller highlighted hydraulic fracturing’s role in significantly boosting production of oil and gas in the United States, which he said “has all come about with a combination of the hydraulic fracturing, the horizontal drilling, all those new technologies that many of the folks in this group and certainly the exhibitors (at the conference) really helped us bring about.”

Later in the session, Gant pointed out that as a result of hydraulic fracturing, U.S. production of natural gas production increased from 65-billion cubic feet (bcf) per day to over 87-bcf per day over the past decade — a level of gas reserves that will enable the U.S. to begin exporting natural gas for the first time. Meanwhile, crude oil production has grown from five million barrels per day to eight million barrels per day last year, and is expected to exceed nine million barrels per day by the end of 2016, she said.

The bulk of the three-day conference’s program focused on the mechanical drilling equipment, completion tools and surface solutions used in the hydraulic fracturing extraction of oil and gas, addressing issues such as well integrity, multi-well pads and pad construction, drilling operations and technology, power systems for fracturing, effective well surveillance, water management, and artificial lift technologies for ensuring the flow of oil and gas from the well. A number of products and solutions were also explored, among them telemetry networks for transmitting data from the well to the surface in real time, proppant delivery systems for transporting sand to the fracturing site via stackable containers, and dissolvable well stimulation systems that use degradable fracturing balls and seats instead of plugs.

The meeting included three panel discussions: “The Unconventional Revolution and Delivering the Solutions”, “Production Operations: Innovation for the Long Haul”, and “The Future of Unconventionals – To Infinity and Beyond”. During these panel discussion sessions guest experts assessed the prospects for hydraulic fracturing given the current petroleum market where the price of oil has been hovering below \$50 per barrel and natural gas prices remain low and flat.

The conference also hosted a busy exposition area, featuring two dozen leaders in the unconventional oil and gas development field. Exhibitors included the conference’s Platinum Sponsor, SandBox Logistics, Silver Sponsors GE Oil & Gas and NCS Multistage, and Bronze Sponsors Baker Hughes, Metallic Building Co., and U.S. Well Services. Other companies represented on the show floor included Southwestern Energy Co., Weir Oil & Gas, Acterra Group, Thru Tubing Solutions, American Jereh and many more.

Information on the 2016 Hydraulic Fracturing Conference will be available in coming weeks. Please visit [go.asme.org/fracturing](http://go.asme.org/fracturing) for future updates.

### ***From the ASME President: The Value of an Engineering Education for Non-Engineers***

(<https://www.asme.org/about-asme/news/letters-official-statements/from-the-president-march-2015>)



**What’s the value of an Engineering Education?** Engineering majors are projected to be the top-paid bachelor’s degree graduates from the Class of 2015. That’s according to a recent survey by The National Association of Colleges and Employers. So the value of an engineering education for a career in engineering is pretty clear. **But many people trained as engineers enter other lines of work. What is the value of an engineering education for them?**

Let’s start with skills. A person graduating as an engineer is a problem solver. An engineer knows how to analyze data. He or she knows numbers and can use logic to make difficult decisions. Strong computer skills are a given. An engineer is a designer and a team player. These are skills prized in law, in medicine and in finance.

In business, too. ASME recently presented its prestigious Kate Gleason Award to Ursula Burns. Burns is a mechanical engineer who is now CEO and chairman of Xerox. Here is what Burns recently told ASME.org about the value of her engineering training:

My entire existence, my business personality, my practices at work — how I lead, manage, and interact — the foundation of it all is my engineering education. I moved from engineering to business but the difference is not a difference at all. The synergy between the two is amazing.

Engineers sometimes find their way into the arts. Alfred Hitchcock studied at a technical and engineering school in London, and worked as a draftsman. We can presume he knew his way around the optics of camera lenses, and the mechanical systems of camera cranes and dollies.

Another great director, Frank Capra, found an engineering background helpful when the motion picture industry was struggling during the transition to “talkies.” Capra graduated in 1918 with a degree in chemical engineering from a college that would become the California Institute of Technology. Capra understood how to use the movie industry’s emerging sound technology.

Engineer Tom Scholz knew his way around sound, too. Scholz received a bachelor’s and a master’s degree in mechanical engineering at MIT. He started recording song demos in a home studio while working for Polaroid as a product design engineer. He went on to found the rock band *Boston*.

An engineering background frequently seems useful for politicians. President Jimmy Carter studied engineering in college and became a submariner after graduating from the U.S. Naval Academy. His graduate work was in nuclear reactor technology and nuclear physics. President Carter became an Honorary Member of ASME in 1980.

And then there are the Sununus. John H. Sununu earned a Bachelor’s, Master’s, and PhD in mechanical engineering from MIT. He served as governor of New Hampshire, and was White House Chief of Staff under President George H.W. Bush. His son, John E. Sununu, holds a Bachelor’s and Master’s degree in mechanical engineering, also from MIT. He served six years in the U.S. Senate.

Engineers learn how to meet individual performance goals; they also learn how to manage teams of people. So there is a lot to recommend for a degree in engineering. It usually leads directly to a good job and a great career. But people sometimes change the direction of their lives, and they sometimes find skills developed studying engineering, including such topics as thermodynamics and fluid mechanics, serve them well in other fields. For jobs in business, the arts, politics, and even on the ball field.

I believe that it also important for every citizen to have some background in STEM (science, technology, engineering and mathematics) subjects to be able to deal with the increasingly complex world that we live in. For example, it is important to be able to separate fact from fiction when purchasing things such as appliances, computers and automobiles, as well as to make appropriate choices on issues such as energy policy.

For those of you who are interested in learning more about how engineering skills enriched the careers of some well-known individuals, head over to Charles Murray’s [Design News blog](#) for an entertaining and informative slideshow called *18 People You Didn’t Know Were Engineers*.

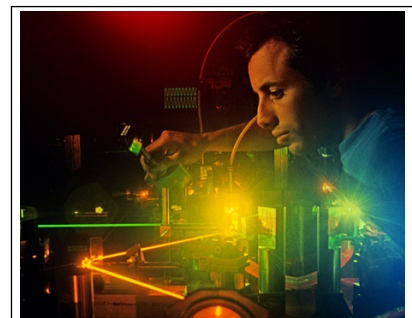
J. Robert Sims, ASME President

### **5 Job Areas to Consider in Advanced Manufacturing**

(by Eric Buttermann, in *ASMESmartBrief* publication, April 9, 2015)

(<https://www.asme.org/engineering-topics/articles/manufacturing-processing/5-job-areas-consider-advanced-manufacturing>)

Mechanical engineering already presents its share of employment possibilities, but combine it with the white-hot field of advanced manufacturing and the opportunities only widen. ASME.org looks at five job areas for MEs to consider in this expansive category.



### **Medical Device Design and Manufacturing**

Healthcare is a field that will likely grow as time goes on, and medical device development and manufacturing has opportunities within it. “It’s not just whether you can create something but can you make sure it will meet regulations,” reminds Dr. Nabil Nasr, associate provost and director of the Golisano Institute for Sustainability at the Rochester Institute of Technology. “For a company like a Johnson & Johnson, GE Medical, or Siemens, there are a good amount of suppliers that work with them to set up manufacturing processes and will also need expertise from the production side as well.” In



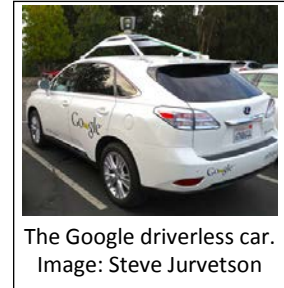
addition, many with a mind for engineering often have an interest or an aptitude for medicine—here's a chance to combine both without all those years of medical school.

### Sustainability Manufacturing

With growing demand and rising consumption in many countries around the world today, we need solutions to be environmentally conscious and for products to be disposable at the end of life. “Sustainable manufacturing design is extremely valuable here—if an engineer can find ways for products, even electronic games, that end up in the trash or recycled to be recovered, it's huge,” Nasr says. “Think of the demand to do this even with small appliances. To see a product to the very end—rather than just its function during use—that's a different level of being a visionary.”

### Control Sensors Development

This area is the one Nasr is highly involved in. Developed at the Rochester Institute of Technology, he says, a group called Vnomics Corp. has been able to take advantage of embedded sensors. “Looking at aspects such as autonomous vehicles and advanced safety, we see mechanical engineers in this work area are in high demand,” he says. The company has around 75 mechanical and electrical engineers to show for it, according to Nasr.



### Welding Engineer

Richard Trillwood, CEO and Founder of Electron Beam Engineering, says welding engineers are in strong demand, with lasers and electron beam work among the leading areas of opportunity. “Laser is expanding at a very high rate and you have to consider fusion welding as on the move as well,” he says. “This involves electron beam, friction, projection resistance, and more. For someone who takes to the subject matter, there is a lot of potential.”

### Supply Chain Strategy

When it comes to the manufacturing environment, you often hear that learning how to qualify a supplier production is key, Nasr says. Here, he believes mechanical engineers can have an edge. “It's how you deal with the mechanics of having a supply chain that ultimately results in getting the final product produced at the right specification,” he says. “Mechanical engineers have the background to hone in on problems that get in the way.”

*Eric Butterman is an independent writer.*

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### **Chair's Corner**

To those who were able to join us at the March 26th Engineering Ethics & Professional Conduct continuing education course we trust enjoyed the refresher course (good for 2 Professional Development Hours [PDHs]) and plan on joining us again next year.

We plan on having a Joint Society of Women Engineers [SWE] and American Institute of Aeronautics & Astronautics [AIAA] meeting this April 23 at our annual "Honors & Awards" event. **Please make plans to join us at the OSU-OKC campus**– see meeting notice above for details. All ASME-Central Oklahoma Section members, SWE Section member, AIAA Section members, students, and guests are welcome to join us.

Tom Betzen, Chairperson, ASME Central Oklahoma Section

### **Future ASME-Central Oklahoma Section Events**

Date	Location	Program Topic and Speaker
Saturday April 18	OSU Campus Engineering North & ATRC Buildings Stillwater, OK	XXXV <sup>th</sup> Annual AIAA-ASME Symposium Presentations offered by industry professionals and by engineering students from OSU, OU, OC, TU, and ORU.
Thursday April 23, 2015	OSU-OKC Campus Student Center Building 900 N. Portland, OKC	Honors and Awards Meeting SPEAKERS: Ms. Verna L. Martin, Associate Director of Secondary Schools and Reform, and Ms. Kathleen (Kate) Haydon, Career Academy Coordinator, Oklahoma City Public Schools TOPIC: "Oklahoma City Public Schools (189), High School Career Academies & Academies of Engineering"
Thursday May 28, 2015	TBD	TBD

**Please visit our Section website:**

[https://community.asme.org/central\\_oklahoma\\_section/default.aspx](https://community.asme.org/central_oklahoma_section/default.aspx)

**IT'S BEEN REVAMPED.** Check event updates and other useful information!