

SUSTAINING MEMBERS

HUNTINGTON INGALLS - NEWPORT
NEWS SHIPBUILDING



NONLINEAR ENGINEERING, LLC



IMPORTANT NOTICE:

To continue receiving your chapter's event notifications, please be sure your email and postal addresses are up to date on the ASM web site:

www.asminternational.org

We will continue to send the hard copy to members who do not have email or have requested email not be sent.

Be sure to visit the **chapter website** at:
asmeasternvirginia.tripod.com



Eastern VA Chapter ASM
C/O Steven J. Gentz
2252 Towne Park Drive SW
Huntsville, AL 35803



Eastern Virginia Chapter

A Joint Meeting with the Central Virginia
Section of ASME

Technical Presentation Aluminum Bridge Deck Structures for Highway Use*

Tuesday, January 27, 2015

Virginia Commonwealth University
Engineering East Hall, Room E2221
401 West Main Street
Richmond, Virginia 23284

6:30 – 7:00 PM: Social time and dinner
7:00 – 8:00 PM: Technical Presentation

Dinner: Pizza and soft drinks will be provided
at a charge of \$5 per person.

Reservations: Please notify Jeff Wiese at
804-421-7897 or wiese@nleng.com by
Friday, January 23 on your planned
attendance. Everyone is welcome.

Chairman's Message:

This month's presentation is the second of three technical talks jointly sponsored by our chapter and the Central Virginia Section of ASME. The last in the series will be "Equilibrium Phase Diagrams" to be held in the Williamsburg area in April. These technical presentations are educational in nature and will be worth one (1) Professional Development Hour (PDH) each toward a Virginia Professional Engineer license. Virginia requires 16 PDHs during each two year license renewal period, and three of those could be covered by these technical talks at no cost to the attendee.

We have two activities planned for February. Every year we support the Engineers Week banquets by the Richmond Joint Engineers Council (rjec.org) and the Peninsula Engineers Council (va-pec.org). Please see their web sites or contact any of our officers for more information.

Finally, in March we will be holding our second annual CO₂ Dragster Contest at the Science Museum of Virginia in Richmond as part of the Celebrate Engineering Ingenuity Day. The objective of this contest is to teach the participants about materials selection and utilization through the practical task of creating small, CO₂ jet powered dragsters. The designers must make the vehicles as light as possible in order to score the lowest run times and must consider their material selections carefully to achieve that goal. See the chapter web site for more information.

Please note that everyone is welcome to these events, and we hope to see you there.

About the Presentation:

"Aluminum Bridge Decks for Highway Use," is about the concept, its evolution, and other structural aluminum applications including:

- Unpainted aluminum girders in service since 1961.
- A portable aluminum bridge to span insufficient bridges facilitating heavy transformer deliveries.
- The aluminum deck technology used on 70 European bridges.
- Issues such as corrosion, bimetallic connections, fatigue, use of friction connections, friction stir welding (FSWelding).
- Where/why the technology makes sense.

It is about the use of a nontraditional material in infrastructure with the potential for 100+ year longevity.



The advertisement for Met Lab Corporation features a collage of various metallographic equipment. At the top left is the Met Lab Corporation logo, which consists of the word "Met" in white inside a red circle, followed by "Lab" in a large red font and "Corporation" in a smaller red font. To the right of the logo is a small inset photograph of a laboratory with several people in white lab coats working at equipment. Below the logo and photo are several pieces of equipment, each with a red starburst graphic indicating its starting price. The equipment includes a large industrial machine (starting at \$7,295), a smaller machine labeled "METPRESS A" (starting at \$2,995), a large vertical machine (starting at \$6,050), a dual-disk machine, a microscope, a computer monitor displaying a software interface, a small machine with a blue container, and a machine with a blue bag. At the bottom of the advertisement is a red banner with the website "www.metlabcorp.com" and the phone number "1-800-828-6866". Below the banner is a black banner with the text "FOR ALL YOUR METALLOGRAPHIC NEEDS SINCE 1968".

Met Lab Corporation

starting at \$7,295

starting at \$2,995

starting at \$6,050

www.metlabcorp.com 1-800-828-6866

FOR ALL YOUR METALLOGRAPHIC NEEDS SINCE 1968

Contact any of our officers if you would like to advertise in our newsletter.

About the Speaker:

Kurt Thompson received his BSME from the University of Virginia. He worked for Reynolds Metals Company (RMC) in their corporate engineering services and then in R&D for 21 years. While in R&D, Kurt stimulated interest, acquired funding, then led the \$2.3 million per year program for 2.5 years developing the aluminum bridge deck technology. That program built a multidisciplinary, multi-corporate team including RMC, Oak Ridge National Laboratory, Modjeski and Masters, and others that developed the wearing surface, deck structure, and arc welding procedures. Two arc welded bridge decks were installed and remain in service to this day (17+ years). In 2012, Kurt participated in another installation. The 14' X 64' X 28 ton prefabricated superstructure was shipped across four states, then lifted into place in 30 minutes proving unsurpassed accelerated bridge construction capabilities. Design enhancements include the use of FSWelding and friction connections. These innovations led to changes in the AASHTO and AWS D1.2 Codes.

Directions from Hampton Roads Area:

Heading West on I-64:

1. Take exit 190 on left for 5th Street toward Downtown/Coliseum/I-95/Petersburg
2. Continue on North 5th Street for 0.7 miles
3. Turn right onto East Main Street for 0.5 miles
4. VCU Engineering East Hall is on your left at the intersection of W. Main and N. Belvedere Sts.

Parking:

Street parking is limited. The nearest public parking is JL Lot located at 200 West Cary St. between S. Madison and S. Jefferson Sts., just around the corner from the Engineering East Hall. The lot entrance is from Madison St. Evening parking is \$1 for first hour and \$2 for each additional hour.

Evening entry to the building is on the W. Main St. side of the building.

Upcoming Events:

- February:** Engineers' Week Activities (Tidewater and Richmond)
RJEC Engineers Week Banquet – February 26 (rjec.org)
PEC Engineers Week Banquet – February 28 (va-pec.org)
- March 14 (π day):** CO₂ Dragster Contest at Celebrating Engineering Ingenuity Day (Richmond)
- April:** Equilibrium Phase Diagrams* (Williamsburg)
- May:** Spring Social: All You Can Eat at Bottoms Up Pizza (Joint Meeting with ASME in Richmond)

* 1 PDH credit will be awarded for each technical presentation

Chapter Officers:

Chairman: Jeff Wiese wiese@NLEng.com	Vice Chairman: <i>Open</i> <i>Position</i>	Secretary: Kurt Thompson kurtthomps@aol.com
Treasurer: Don Geisler drgeisler@verizon.net	Program Chair: Steve Gentz steven.j.gentz@nasa.gov	Web Master: Jim Hurst bricks59@cox.net

Nonlinear Engineering



Engineering Analysis Services - Located in Central Virginia

Nonlinear/Linear Structural	Explosive/Blast
Impact/Crash	Heat Transfer
Metal Forming/Hydroforming	Thermal Stress

804-421-7897 www.NLEng.com



www.ASMPowerofOne.com