



April 18<sup>th</sup>, 2016

ASM – AFS and SME Joint  
Technical Meeting

# The Need for Speed in Additive Manufacturing

For more  
information and to  
register,

[CLICK HERE](#)

by April 14, 2016

## Location:

Illinois Central College  
Agriculture & Industry  
Technology (AIT) Bldg.  
Room 245

1 College Drive  
East Peoria, IL 61635

## Schedule:

**4:30 – 5:30**

Social Hour

**5:30 – 6:00**

Dinner

**6:00 – 7:00**

Tech. Presentation

## Details:

Dinner is subsidized and will be \$15 if you pre-pay (via PayPal invoice) or \$20 at the door for ASM-AFS members (\$5 for students), \$20 pre-payment or \$25 at the door for all other attendees (\$10 for student non-members).

## Presentation Abstract:

While additive manufacturing has generated tremendous interest over the past five years, there are many scientific hurdles that must be answered before the industry can transform from prototyping to main stream manufacturing. First, most of the basic processes involve incrementally melting and depositing material. The resulting temperature gradients generate residual stress that manifests itself as part distortion. Are there materials and processes that can manage residual stress? Second, almost all additive systems manufacture small parts (less than 1 cubic foot) at slow rates (approximately 1 cubic inch per hour) with expensive feedstocks (exceeding \$100/lb). What happens when there are disruptions in the technology where speeds and sizes increase by orders of magnitude? Introductions of composites to additive manufacturing is rapidly changing the landscape of applications to large scale systems such as cars, boats and wind turbine molds to name a few. Are we on the verge, due to scientific breakthroughs, of the industrialization of additive manufacturing?

**Presenter:** Lonnie Love, Ph.D., is a Corporate Fellow and Group Leader of ORNL's Manufacturing Systems Research Group. He has over 20 years of experience in the design and control of complex robotic and hydraulic systems. Past research focused on mesofluidics (miniaturized hydraulics), strength amplifying machines, holonomic omnidirectional vehicles and nanofermentation (biological synthesis of nanomaterials). He is the project lead for the Big Area Additive Manufacturing (BAAM) program at ORNL that is focusing on large scale, high speed composite additive manufacturing that is now being commercialized by Cincinnati Incorporated. Lonnie was ORNL's 2014 Distinguished Research Scientist, 2009 Inventor of the year, has over 30 invention disclosures and patents and 75 peer reviewed publications. He serves on the scientific advisory board for NSF's Center for Compact and Efficient Fluid Power.



For more information and to register [Click Here](#) or scan the QR code above. If you have difficulty using the online form, please RSVP to Rachel Dressler ([Dressler\\_Rachel\\_L@cat.com](mailto:Dressler_Rachel_L@cat.com)) or (309) 494-2499

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