

## 2016 Solid-State Lighting R&D Workshop

# Welcome

February 2, 2016  
Raleigh, NC

**James R. Brodrick, Ph.D.**

U.S. Department of Energy

# Why Are We Here?



- Visit PNC Arena
- Sample local brew
- Escape the snow in DC
- Learn, share, participate

# A Closer Look at Why We Are Here

A photograph of three men in business suits engaged in a conversation at what appears to be a workshop or conference. The man on the left is wearing glasses and has his arms crossed. The man in the center is looking towards the man on the right. The man on the right is holding a white mug and is also wearing glasses. All three are wearing name tags. The background is a plain, light-colored wall.

*“Great to have much-needed conversations within the industry, and between industry and government, as well as for all stakeholders to get onto the same or similar wavelength.”*

*– Workshop attendee*

# A New Lighting Paradigm



These are early days for SSL

Impressive gains, but enormous technology potential remains

*Good enough?*

# A New Lighting Paradigm

New companies emerge,  
familiar companies reinvent themselves



Royal Philips and OLEDWorks strike acquisition deal on OLED panels and manufacturing

Cree and Epistar sign major LED patent cross-licensing agreement

GE taps IBM exec for new IoT lighting and energy unit



Acuity Brands  
Acquires ByteLight



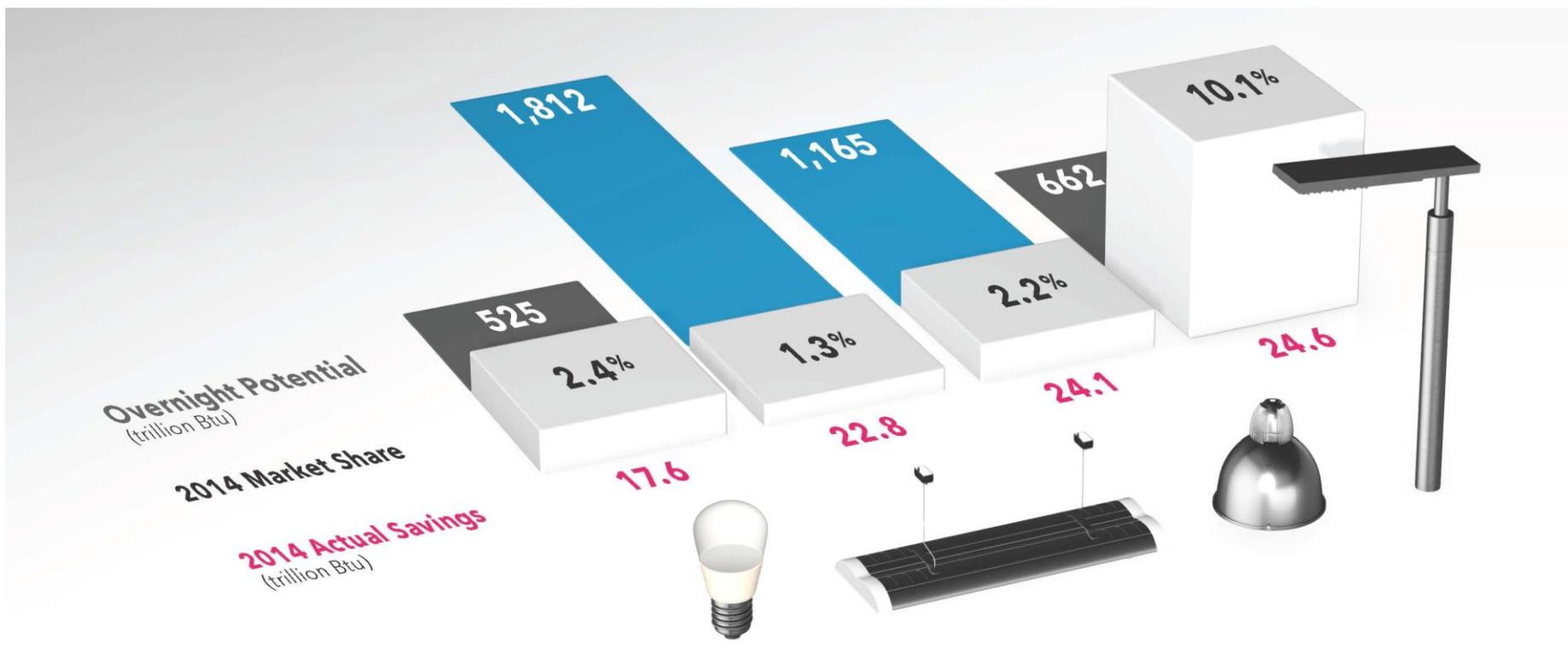
Philips in lighting partnerships with Cisco, SAP and Bosch



Home Depot starts to offer Acuity Brands' OLED luminaires, prices start at \$199

# Early Progress

Focus on familiar form factors and uses



Linear and high/low bay fixture offer greatest energy-saving potential

# What's Next for SSL?

Tuning the spectrum...



...for health and productivity

...for plant growth

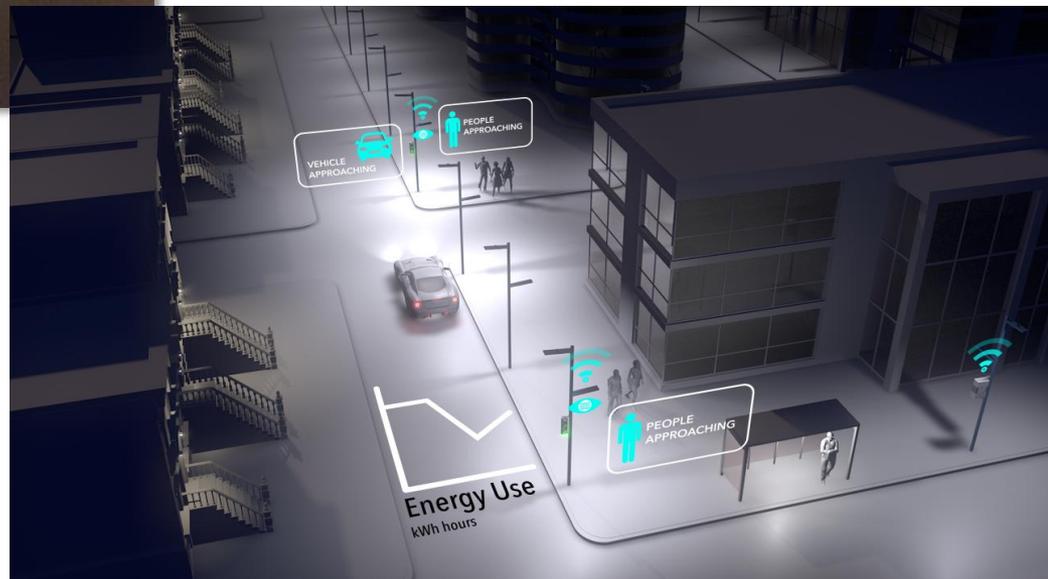


# What's Next for SSL?

Connected lighting systems...



...offer lighting and more



# Three Packed Days: Expert Speakers Share Their Views

- What **market forces** are shaping SSL technology?
- How is SSL defining **new market opportunities**?
- What remaining R&D challenges stand in the way of bringing **OLED panels and products to market**?
- How can R&D improve **LED building blocks** to enable further energy savings, improved lighting performance, and new applications?
- What R&D will enable **connected lighting systems to** overcome the issues that limit the success of today's lighting controls?
- What **human factors research** is needed to validate health and productivity claims?
- How can we quantify **SSL system reliability** with confidence?

# Three Packed Days: Track Sessions Take a Closer Look



## LED track sessions...

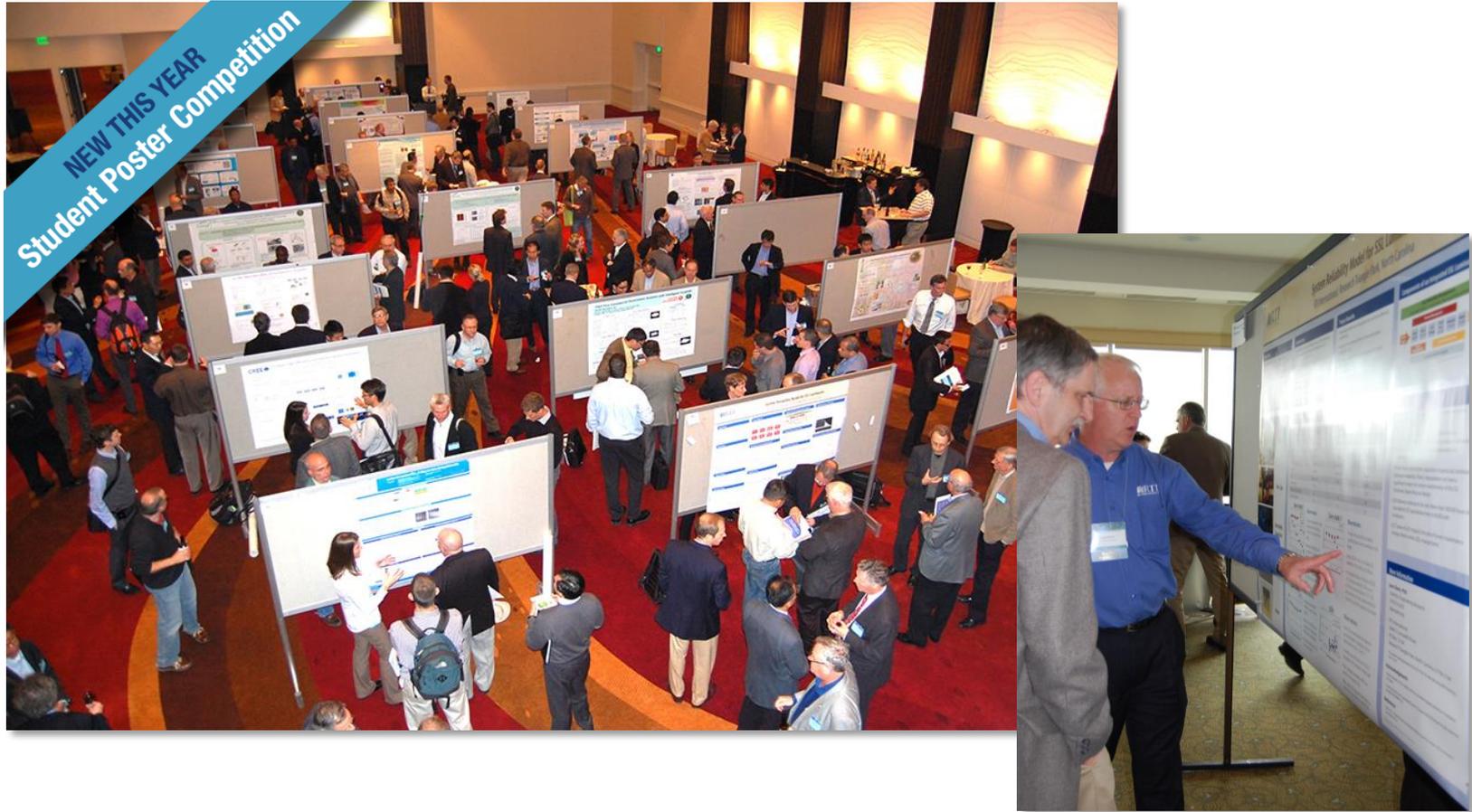
Examine issues around droop, LED package and power supply, new manufacturing methods and tools, and innovative new lighting concepts



## OLED track sessions...

Examine OLED materials, light extraction concepts, product development needs, manufacturing challenges

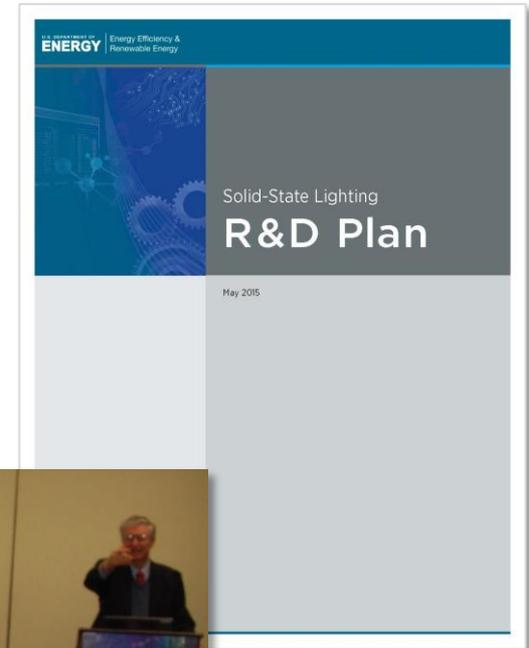
# Three Packed Days: Poster Session/Reception



Highlighting the work of >50 of today's leading SSL scientists  
Opportunity for one-on-one discussions

# Three Packed Days: Planning for Action

Discussion of priorities, metrics, and milestones



# DR. ROLAND HAITZ

## 1935–2015

“Solid-state lighting is where the internet was in the 1980s. Just as we could not then have predicted what the internet is now, 30 years later, we cannot foresee all that light and lighting will become in the next decades. We know simply that it will be wondrous and beautiful.”



*Photo: QuarkStar*