

Postings: from the desk of Jim Brodrick

Greetings from San Diego, where many of the lighting industry's best and brightest have gathered to share ideas, explore complex issues, and help define the research agendas for government, industry, and academia at DOE's [eighth annual SSL R&D Workshop](#). This is a critical time for solid-state lighting, because it's poised on the threshold of the mainstream lighting market, with some LED lighting products already competing with their traditional counterparts. While today many LED products out there are intended as replacements, designed to work with existing lighting systems and fixtures, solid state lighting, which is fundamentally different from traditional lighting, will realize its full potential in luminaires specifically designed for LEDs or OLEDs.

That's why we're seeing more and more "purpose-built" LED luminaires coming onto the market. And one thing about such products that many of us in the industry find especially exciting is that they're not subject to the same kinds of limitations that have dictated the way we've traditionally delivered, controlled, and even powered light – not to mention the way we've shaped lighting fixtures. OLEDs, which after years of intensive R&D seem poised to enter the general-illumination market, could offer still more exciting innovations for lighting. What all this means is that we've got a whole new range of options with solid-state lighting, options that we don't have with traditional lighting technologies. That gives us a chance to really "think outside the bulb" and come up with entirely new directions to take SSL.

We've only just begun to tap its potential, so the question really

becomes "where will SSL go?" In fact, several workshop panels here in San Diego are focusing on just that, as they consider what the future might hold. For example, the potential of SSL to integrate lighting controls more effectively than conventional lighting provides scope for significant additional energy savings, beyond those that result from an increase in the efficiency of light generation. And, of course, SSL lends itself to novel form factors that might seem like something straight out of science fiction. Another opportunity is the judicious use of LED task lighting, which may allow ambient lighting levels in many offices to be lowered without any adverse effect on performance, to bring significant energy savings. And so on.

Of course, the future of solid-state lighting depends on R&D that's planned and conducted in the present, and as always at our R&D workshops, we'll take a close look at DOE's SSL R&D priorities, with an eye toward revising them to keep pace with the development of the technology and the marketplace. Attendees will get a chance to roll up their sleeves and dive down deep into the key issues, in separate breakout track sessions for LEDs and OLEDs. The LED sessions will cover such topics as novel architectures, droop reduction, new packaging and materials, and integrated functionality, while the OLED sessions will focus on such things as improving light extraction, extending lifetime, and increasing brightness. The input we get from those sessions – from any and everyone who wants to offer it – will shape the updating of DOE's [SSL R&D Multi-Year Program Plan](#) and guide DOE's planning for the next round of SSL R&D funding.

Four companies will be recognized here at the San Diego workshop for their significant contributions last year to SSL R&D: Cree, Inc.; OSRAM Sylvania; Universal Display Corporation; and Lightscape Materials, Inc. Lightscape is one of five companies – the others being Cambrios Technologies Corporation, Philips Lumileds Lighting, PPG Industries, and White Optics – that will talk about the particularly tough challenges they're in the process of tackling through their DOE-funded projects. These projects, which range in

subject matter from low-cost integrated OLED substrates to LED reflector composites, all have the potential to yield game-changing results.

The big question that comes to mind here in San Diego is: how far can we take SSL, and what kind of research will it take to get us there? The door is wide open to innovative new lighting solutions, and from my vantage point at the workshop, the future – if you'll forgive the pun – is bright ahead.

As always, if you have questions or comments, you can reach me at postings@lightingfacts.com.

James R. Brodrick
