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## Thoughts on the Detroit Workshop

The momentous changes occurring right before our eyes in the field of lighting make it appropriate that last week's [ninth annual DOE SSL Market Development Workshop](#) was held in Detroit. These are exciting times for lighting, but also exciting times for Detroit. Not just because of the major LED streetlight conversion taking place there, but also because Detroit is in the midst of an economic revitalization that's transformed it from the Motor City into the Motivated City and is attracting a wide range of innovative businesses. We got a flavor of that on a pre-workshop bus tour that stopped at the headquarters of NextEnergy, which serves as a demonstration site for Michigan-spawned energy-saving ideas, including a DC-powered LED lighting system, and also visited the Chrysler House to view a very interesting office experiment that combined LED replacement tubes with motion and daylighting control systems.

A convergence of bright minds and diverse perspectives, the workshop—which featured a welcome speech by Detroit mayor Mike Duggan and a keynote address by Byron Auguste, who serves as Deputy Assistant to President Obama and Deputy Director of the White House National Economic Council—offered ample confirmation that things are changing fast for solid-state lighting. For one thing, the technology seems about to explode, in terms of not only complexity but also opportunities. For example, largely thanks to SSL, we're coming to view light as not just something that allows us to see but, rather, as a multifaceted commodity that can be manipulated to also affect our mood, health, and productivity.

In a lively panel discussion on that topic, Steven Lockley of Harvard University noted that light has a powerful effect on our bodies, mainly by impacting our circadian rhythm. He explained that this process is mediated in large part by special nonvisual cells in the eye that are particularly sensitive to light in the blue range, at a peak of 480 nm, and that SSL's spectral tunability gives it a considerable advantage in this regard over other lighting technologies. Fellow panelists Leslie North, a lighting designer, and John Hwang, a manufacturer, brought their own perspectives to bear on the matter by discussing the use of spectral tuning with specific populations, such as hospital patients and professional athletes.



Leslie made the observation that we're in the midst of a "sea change in lighting." Her description does seem apropos—not just because of growing interest in nonvisual uses of light, but also because SSL is becoming more and more complex as it increasingly finds itself paired with controls of various types. This pairing is facilitated by SSL's digital nature, and its inevitability as a widespread practice in the near future was a common theme heard throughout the Detroit workshop. But the use of controls with SSL raises the thorny issue of interoperability, a topic covered in a panel discussion featuring Michael Poplawski of Pacific Northwest National Laboratory (PNNL), Paul Dunn of Telensa, and Pekka Hakkarainen of Lutron. After Michael set the stage by neatly summarizing the underlying technological issues, Paul described the efforts of the TALQ Consortium to make street lighting interoperable, and Pekka talked about the work of the Connected Lighting Alliance to promote wireless lighting systems, emphasizing that it's important for the industry to lay this kind of groundwork now rather than later.

Another recurring theme in Detroit was that lighting systems and luminaires appear to be on a path to morph into multi-function devices, doing far more than just lighting a space. This is reflected in the emergence of "smart lighting," which was the topic of an intriguing panel in which Partha Dutta of Rensselaer Polytechnic Institute and Susanne Seitinger of Philips Color Kinetics shared their takes on what the future of smart lighting might look like. Smart lighting examples shared by the speakers ranged from spectrally tuned lights for indoor vertical vegetable farms, to interactive light displays that gauge the stress level of a university community.

But the continual changes in SSL technology can pose problems for specifiers. In a panel on that topic, Scott Hershman of LF Illumination, Jim Yorgey of Lutron, and Brienne Willcock of Illuminart offered their ideas on how to make LED products "future-proof," so that they're not rendered obsolete by newer generations in the sometimes lengthy interval between specification and

installation. This dialogue continued—between manufacturers, specifiers, and utilities—during the next few panels, highlighting the collaborative nature of the entire workshop.

The moderator of the Hershman-Yorgey-Willcock panel, PNNL's Naomi Miller, made the point that because of solid-state lighting's increasing complexity, "We're essentially installing computers, not lights." She and a number of others emphasized the importance of making sure that amid all of these other features and capabilities, the quality of the light doesn't suffer—and neither does the energy efficiency. The latter point was driven home memorably by Kelly Sanders of the Northwest Energy Efficiency Alliance, who participated in a panel discussion on utility lighting programs of the future. Kelly took the often-used phrase "the Internet of things" and changed it to "the energy of things," as an effective reminder to keep the focus on energy, so that the value-added features don't take over. Dan Mellinger of Efficiency Vermont, who was part of a panel on market trends, laid out a pathway for increased energy savings from SSL once all the sockets are filled with replacement lamps.

Overarching all the themes that resonated throughout the Detroit workshop was the sense that despite all the progress and excitement, we're really just getting started with SSL. There's still a lot of potential to be tapped, as well as many remaining challenges. That's the reason we hold workshops like last week's, and [DOE's 12<sup>th</sup> annual SSL R&D workshop](#), which is taking place January 27–29, 2015, in San Francisco.

The presentations from the Detroit workshop will be posted soon on the [DOE SSL website](#), followed not long afterwards by a detailed summary of the proceedings.

As always, if you have questions or comments, you can reach us at [postings@akoyaonline.com](mailto:postings@akoyaonline.com).