FEBRUARY 2008

Rocky Mountain Monthly

IESNA ROCKY MOUNTAIN SECTION

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LED TECHNOLOGY

The emergence of efficient, high brightness LEDs has generated a tremendous amount of excitement in recent years. Ruggedness, reliability, color changing capability, optical control, and long life are among the unique qualities that this potentially revolutionary technology offers.

However, there are a number of issues that currently limit the degree to which it can be practically applied. Join us as we take an in-depth look at LED performance and discuss the inherent challenges relative to broad-scale application.

Join us for this exciting update on LED technology, while being able to get hands on demonstrations of the latest products using LED technology, all available from various manufacturers before the meeting!

We will have a wide variety of LED fixtures and products from several manufacturers available for demonstration before the meeting .

COME EARLY TO CHECK THEM OUT!

LED TECHNOLOGY MEETING DETAILS

Date: Tuesday, February 12, 2008
(deadline for RSVP is Monday, February 11)

Time: 5:30pm

Location: Original Brooklyn's
2644 West Colfax, Denver

Cost:

$15	Members
$25	Non-Members
FREE	Students

Register for this meeting right now!

RSVP Online NOW!

Click here to be automatically directed to the registration website.

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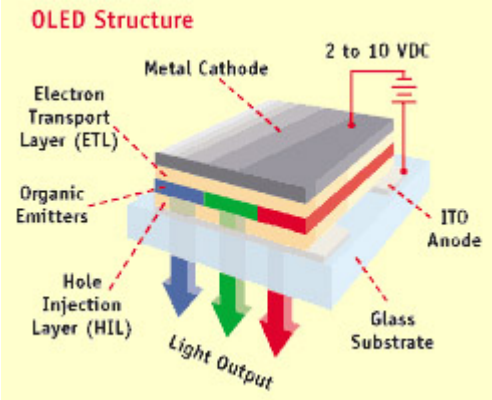
OLED's

An organic light-emitting diode (OLED), also Light Emitting Polymer (LEP) and Organic Electro-Luminescence (OEL), is any light-emitting Diode (LED) whose emissive electroluminescent layer is composed of a film of organic compounds. The layer usually contains a polymer substance that allows suitable organic compounds to be deposited. They are deposited in rows and columns onto a flat carrier by a simple "printing" process. The resulting matrix of pixels can emit light of different colors. Such systems can be used in television screens, computer displays, portable system screens, advertising, information and indication. OLEDs can also be used in light sources for general space illumination, and large-area light-emitting elements. OLEDs typically emit less light per area than inorganic solid-state based LEDs which are usually designed for use as point-light sources.

The radically different manufacturing process of OLEDs lends itself to many advantages over flat-panel displays made with LCD technology. Since OLEDs can be printed onto any suitable substrate using an inkjet printer or even screen printing technologies, they can theoretically have a significantly lower cost than LCDs or plasma displays. Printing OLEDs onto flexible substrates opens the door to new applications such as roll-up displays and displays embedded in clothing.

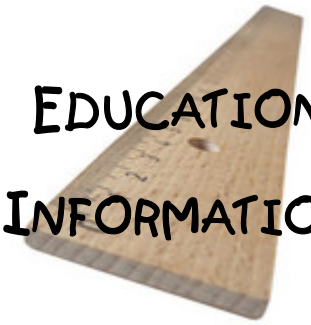
OLEDs enable a greater range of colors, brightness, and viewing angle than LCDs, because OLED pixels directly emit light. OLED pixel colors appear correct and unshifted, even as the viewing angle approaches 90 degrees from normal. LCDs use a backlight and cannot show true black, while an "off" OLED element produces no light and consumes no power. Energy is also wasted in LCDs because they require polarizers which filter out about half of the light emitted by the backlight. Additionally, color filters in color LCDs filter out two-thirds of the light.



The biggest technical problem for OLEDs is the limited lifetime of the organic materials. In particular, blue OLEDs historically have had a lifetime of around 5,000 hours when used for flat-panel displays, which is lower than typical lifetime of LCD, LED or PDP technology – each currently rated for about 60,000 hours, depending on manufacturer and model. But in 2007, experimental PLEDs were created which can sustain 400cd/sq.m of output for over 198,000 hours for green OLEDs and 62,000 hours for blue OLEDs.

OLED technology is used in commercial applications such as small screens for mobile phones and portable digital audio players (MP3 players), car radios, digital cameras, and high-resolution microdisplays for head-mounted displays. Such portable applications favor the high light output of OLEDs for readability in sunlight, and their low power drain.

On October 1st, 2007, Sony became the first company to announce an OLED television, which was released in Japan in December 2007. Samsung unveiled a 31-inch OLED TV at the January 2008 CES in Las Vegas and is promising much larger screens to come. "We have the technological ability to make 40-inch OLED," said a spokesman, before adding that it won't be until 2010 that the company will be in a position to mass produce such panels.



There is currently no new information to report in the education section of the Rocky Mountain Monthly.

You can always visit www.iesrms.org/education for the latest in what is happening in lighting education in the Rocky Mountain region.

LEDucation II

March 12, 2008

New York City

The Designers Lighting Forum of New York is presenting LEDucation II an enhanced LED education program and table top event to be held at the Fashion Institute of Technology (FIT), Haft Auditorium and the Great Hall, Seventh Avenue 27th Street, in NYC. 5:30-7:00 pm: Table top viewing, 7:00-8:00 pm: Moderated presentations of LED's technology, integration and application.

The program is Free for DLF and IESNA members, sponsors and students, all others pay $10.00. Food and refreshments will be served. Table top space is available on a first come first serve basis. To reserve your table payment is due by January 11, $450 for sponsors, $600 for non sponsors.

For more information contact: Burt Grant 516-933-9330, e-mail: burt@metroltg.com

BIG BROTHER IS WATCHING YOU!!!

Have any of you noticed we haven't been giving out our meeting raffle tickets? Well, we've been keeping attendance this year.

We are going to give a **COOL PRIZE** to the person that shows up to the most meetings this year! Last year, Andrew Mitchell from WSI Lighting won an iPod Shuffle for attending the most meetings!

See, you knew you were coming for something other that learning!

WELCOME NEW SECTION MEMBERS

Miles Dudgeon,
Wybron
Colorado Springs, Colorado

Jarrod Reimer,
Beaudin Ganze Engineers
Englewood, Colorado

Lee Schlais
Wybron
Colorado Springs, Colorado

LED Expo
Original Brooklyn's
February 12
Join us as we invite manufacturers to bring you the latest products and technologies in the LED industry along with demonstrations and discussions on the industry.

2008 Upcoming Section Events

All About Lighting Controls
Original Brooklyn's
May 13
With answers to everybody's questions, manufacturers provide demonstrations of everything from sensors, relays and photocells, to daylighting controls and architectural and theatrical lighting products. A must see meeting!

Lighting Forensics
Original Brooklyn's
March 11
We explore in depth design considerations when working in dark spaces, parking garages, secure facilities, and detention centers with a presentation by a

IES The LIGHTING AUTHORITY

2008 Golf Tournament
Raccoon Creek Golf Club
June 13
Our annual golf tournament returns again at the Raccoon Creek Golf Club! More games, fun, and prizes are scheduled for this year's tournament!

Denver's Brightest Lighting Trio

Nancy Johnson gets the lowdown from three of our favorite IESRMS meeting attendees.

Ryan Kelley, Megan Christen and Eric Frydendall, recent graduates from the University of Colorado's Architectural Engineering program, all entered college with a penchant for science. All three were motivated by the same professor, Dr. David DiLaura, to invest their talent in the wonderful world of lighting. Curious about what they have been doing since graduation?

Working at three different firms, they are part of a small workforce that has a big impact on the illumination industry. Ryan, Megan and Eric are all optical engineers. They are engaged in designing the components that make luminaires do something useful.

Megan, who works for Cooper Lighting, designs reflectors and refractors for light sources. She describes herself as an analytical person. "I've developed a passion for the science and mathematics behind illumination," she says. "It's problem solving, designing the most appropriate optic for a specific lamp and housing in the context of parameters such as cost, performance, and versatility."

Eric works for Pinnacle Architectural Lighting, focused on optics, product development and the technical aspects of lighting. He splits his time between product design, testing product in the shop, studying and building luminaire prototypes developed by Pinnacle to evaluate how the applied technology actually performs. "We are lighting educated people. We are always developing new products using new technology, and looking for ways to make existing product better. The goal is to design a product that works and looks great, and that the market needs."

Ryan, on staff with LTI Optics, provides technical support to clients using their optical modeling software called Photopia. He also consults on optical design for smaller manufacturers who do not have in-house capability. His work is a "dynamic, challenging process. One day I'm helping a newer manufacturer develop a competitive product, and the next I'm working with a market leader to create something truly innovative." Ryan said that one of the obstacles to his work is to overcome the perception that lighting is just a commodity. "Some manufacturers don't appreciate the complexity of the design process required to create a great final product."

So where is the state of technology in the lighting industry? "There's a prominent lack of innovation in luminaire manufacturing," Megan suggests. "Cost and competitive benchmarking remain the primary drivers. Unfortunately in some cases the lamp technology is not mature enough or is not applied correctly to meet the expectation of the market (referring to LEDs)." Eric sees this as a motivator, and part of what he calls the industry 'circle of life'. "It pushes competitors", he says, "to do better design". Ryan says that the trend for the sources to get smaller requires more precise optics, which challenges the manufacturing processes. "There is a huge learning curve for traditional vendors who are used to having large tolerances."

You'll see Megan, Ryan, and Eric sitting together at IESNA meetings. They appreciate the opportunity to stay connected since graduating, and would love the opportunity to cultivate a better understanding of their expertise with the community.

REPRESENTATIVES... MANUFACTURERS...
Did you remember to reserve your tabletop space for the LED Technology section meeting?

Send an e-mail to info@iesrms.org,
and an IES Board Member will be in touch with you
quickly to get your space reserved!

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