First Look

Society for Information Display
SID INTERNATIONAL SYMPOSIUM,
SEMINAR, AND EXHIBITION

DISPLAY WEEK 2012

June 3–8, 2012
Boston Convention & Exhibition Center, Boston, Massachusetts, USA

Announcing Special Topics of Interest on
3D  Solid-State Lighting  Green Technology
Flexible Electronics & Printed Displays
Touch & Interactive Displays

Join us at Display Week 2012
to celebrate the 50th Anniversary
of the Society for Information Display
1962–2012

Visit www.DisplayWeek.org
The Evolution of Displays

Electronic information displays touch nearly all aspects of modern life. Display Week’s 2012 Keynote addresses will provide a vision of how the evolution of display technology will change the shape of displays of the future.

Keynote Speakers

Dr. Byung Chul Ahn, Senior Vice-President and Head of the OLED Development Center, LG Display Co., Ltd.

“Recent Breakthroughs for Larger-Sized OLED Displays and Their Application to OLED TV”

This year will mark the first year of the launch of larger-sized OLED TVs. This talk will highlight recent advances made in OLED technology and reveal the manufacturing breakthrough that led to the production of larger-sized OLED panels. Dr. Ahn will also describe the core technologies behind this breakthrough. Dr. Ahn led the development of the mass production of the first 5-in. OLED TV in 2009. In addition, he recently has been involved in the commercialization of LG’s 55-in. Full-High-Definition (FHD) OLED TV.

Dr. Sung Tae Shin, Senior Vice-President, LCD R&D Center, LCD Business, Samsung Electronics, Co., Ltd.

“Display Transformation for Continuous Growth of the Display Industry”

Three waves of display evolution have been responsible for the continuous growth of the LCD market – notebook PCs in 2001, monitors in 2005, and LCD TVs in 2008. However, during the past few years, the display industry has become saturated due to stagnation in market growth, low panel price as a result of oversupply, and stagnant investment after Gen 8 production even though new applications, such as 3D, smart TVs, and tablets, have entered the marketplace. This talk will describe the next wave of display evolution – Display Transformation – that will stimulate healthy growth in the display industry. Here, Display Transformation means the multi-purpose use of displays, such as in smart windows, smart e-Boards, and digital art displays, that will deliver various online content and services for the “Smart Society.” The talk will also describe what types of future technologies will be needed for this display transformation and the prospects of the display industry of the future. Finally, Samsung’s vision and strategy of the next display world will be introduced.

Dr. Ramash Raskar, Associate Professor of Media Arts and Sciences, and Co-Director, Center for Future Storytelling, MIT Media Lab

Computational Displays: New Optimization for Interactive Lighting-Sensitive 3D Displays

Dr. Raskar will focus on the development of novel displays by the Camera Culture Group at the MIT Media Lab that (1) respond to ambient illumination (lighting-sensitive displays), (2) support intuitive multi-touch and gestural interaction (interactive displays), and eliminate the need for 3D glasses (autostereoscopic 3D displays). At their core, these architectures exploit both the design of optical elements (e.g., lenslet arrays and layered light-attenuating masks) and the development of the associated light-field encoding/decoding algorithms. Some of the novel displays to be described include the High-Rank 3D (HR3D) display, which contains a stacked pair of LCD panels rather than heuristically defined parallax barriers, the Bidirectional (BiDi) screen, an example of a new type of I/O device that possesses the ability to both capture images and display them, and a 6D optical system, which responds to changes in viewpoint as well as changes in back-lit transmitted illumination.

2012 SID Technical Program to Include Special Technology Tracks

The Society for Information Display’s annual Symposium at Display Week offers a wide selection of presentations on display technology that simply cannot be found anywhere else. This year’s program consists of 73 technical sessions with a total of 256 oral presentations and an additional 138 papers to be presented at the Thursday afternoon Poster Session. Please join us in Boston (Tuesday, June 5 – Friday, June 8) to share the latest research and development discoveries of the display industry and to join in the celebration of the 50th Anniversary of the Society for Information Display (1962–2012). This year’s special areas of focus are 3D, Green Technologies, Solid-State Lighting, Flexible Electronics and Printed Displays, and Touch and Interactivity. Here is just a sampling of those topics and other innovations you can expect to find at this year’s symposium.

3D
Possibly the biggest commercial story in displays in recent years is the arrival of 3D-ready TVs. Now that they have arrived, the story is far from over. Researchers continue to pursue the different approaches of active-shutter vs. passive glasses technology, and glasses-free viewing is a major challenge that many experts believe must be met in order to make 3D displays truly successful. This year’s presentations also cover topics such as autostereoscopic 3D displays, 3D comfort and perception, volumetric and holographic displays, and stereoscopic and display applications.

The Symposium includes the following sessions:

- Oxide TFTs
- Oxide-TFT Manufacturing
e-Paper I & II
- Oxide AMOLED Displays
- Flexible TFTs
- Printed Displays and Electronics I, II, & III
- Flexible Processes

Green Technologies
Display technology continually advances to provide more resolution, larger size, and better performance— all at a lower cost. At the same time, environmental, social, and legislative forces are combining to ensure that manufacturers use the greenest-possible processes to create the most energy-efficient displays. What are the anticipated production and end-of-life issues for the display industry and how can they be addressed?
The Symposium includes the following sessions:

- Driving Methods for Low-Power Displays
- Low-Power Displays and Materials
- Green Optics for Display Systems
- Display Manufacturing: Novel Devices & Green Technology

Solid-State Lighting
Solid-State lighting has begun to fulfill its promise with regard to saving energy and providing design flexibility. However, LEDs have made more commercial inroads in this area than OLEDs, which are currently available only in high-end architectural applications. OLED papers therefore form the bulk of this year’s solid-state-lighting sessions, as the industry pushes to develop higher-efficiency, higher-performing OLED panels. Other solid-state-lighting papers will focus on trends in LED illumination.
The Symposium includes the following sessions:

- Solid-State-Lighting Applications
- Solid-State Lighting I–IV
- Lighting Devices
- Fabrication Processes and Solid-State Lighting

Flexible Electronics and Printed Displays
Recent advances in the area of flexible electronics and printed displays have created the potential for lightweight, low-cost, and flexible devices based on technologies such as oxide TFT, organic light-emitting diode (OLED), and organic photovoltaics (OPV). This is the first year that SID has dedicated sessions to flexible electronics and printed displays; among the exciting work that will be described at the Symposium are the printing of organic TFTs and a new way to use high-temperature processes on low-temperature substrates. The Symposium includes the following sessions:

- Oxide TFTs
- Oxide-TFT Manufacturing
e-Paper I & II
- Oxide AMOLED Displays
- Flexible TFTs
- Printed Displays and Electronics I, II, & III
- Flexible Processes

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**Touch and Interactivity**

Since the launch of touch-enabled mobile devices several years ago, touch has become an increasingly crucial component for numerous display products. Yet, the industry has not found the ideal touch-technology solution. Touch is in an evolutionary phase now, and this year’s papers reflect the diversity of approaches: projective-capacitive, optical, and many more. Which touch technologies hold the most promise and what is the next application or technology on the horizon? The Symposium includes the following sessions:

- Optical Touch Panels
- Enabling Technologies for Touch
- Projected-Capacitive Touch Panels

The topics described above are only a portion of the wealth of information you will discover at this year’s Symposium. Visit [www.displayweek.org](http://www.displayweek.org) to view the Preliminary Program. No one involved in the display industry can afford to miss this event. Please join us in June to engage, learn, and discover what you need to know about the innovations occurring right now in the display industry.

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**Market Focus Conferences**

After a very successful debut in 2010, the Market Focus Conferences, now in their third year, will once again be held in conjunction with Display Week. They will cover the following two topics:

- The LED Lighting Evolution (Wednesday, June 6, 2012)
- The Future of Touch & Interactivity (Thursday, June 7, 2012)

Each Market Focus Conference will concentrate on the critical market development issues facing each of these technologies. Developed in collaboration with IMS Research, the conference will feature presentations and panel sessions with executives throughout the display supply chain. Conference fees include a continental breakfast, lunch, refreshments, access to the Exhibit Hall and Symposium keynote session on Tuesday morning, and electronic copies of the presentation material. Market Focus Conference registration does not require a current SID membership.

**The LED Lighting Evolution – From Sapphire to Lumes:** The LED Lighting Evolution conference will take place on Wednesday, June 6. The goal of this event is to allow global-industry leaders throughout the supply chain to explore the cutting-edge innovations that will shape the future of lighting and backlighting. This conference will feature keynotes and presentations from industry leaders, panel sessions, and ample time for networking.

**The Future of Touch & Interactivity:** The Future of Touch & Interactivity conference is the premiere event for display-industry professionals to learn about the latest in human-machine-interface technologies. The event will take place on Thursday, June 7, and cover how touch and interactive solutions are shaping the display industry. The Future of Touch & Interactivity will feature keynotes and presentations from industry leaders, panel sessions, and ample time for networking.

For further updates visit [www.imsconferences.com/sidfti/html](http://www.imsconferences.com/sidfti/html)

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**SID Business Enterprise (Business Conference and Investors Conference)**

**Business Conference:** The Business Conference will take place on Monday, June 4. The event will feature some of the leading minds from both Wall Street and the display industry and address the opportunities and challenges we are facing in this highly volatile economic environment. The Business Conference will feature keynotes and presentations from industry leaders, lively panel sessions, and ample time for networking.

For further updates visit [www.imsconferences.com/sidbc.html](http://www.imsconferences.com/sidbc.html).

**Investors Conference:** Co-sponsored by Cowen & Co., LLC, a securities and investment banking firm, this Conference, to be held on Tuesday, June 5, will feature company presentations from leading public and private display companies, intended to appeal primarily to securities analysts, portfolio managers, investors, M&A specialists, and display company executives.

For further updates visit [www.cowen.com](http://www.cowen.com)

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**2012 SID Seminar Series**

**Sunday Short Courses**

The Society for Information Display presents four 4-hour short courses on diverse topics related to information display on Sunday, June 3. The tutorials of this goal of this event is to allow global-industry leaders throughout the supply chain to explore the cutting-edge innovations that will shape the future of lighting and backlighting. This conference will feature keynotes and presentations from industry leaders, panel sessions, and ample time for networking.

**The Future of Out-of-Home Displays**

- M-2: AMOLED-based Displays for Future TV Markets
- M-3: Liquid-Crystal Technology
- M-4: Liquid-Crystal Technology
- M-5: Liquid-Crystal Technology
- M-6: Liquid-Crystal Technology
- M-7: Liquid-Crystal Technology
- M-8: Liquid-Crystal Technology
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- M-17: Liquid-Crystal Technology
- M-18: Liquid-Crystal Technology
- M-19: Liquid-Crystal Technology
- M-20: Liquid-Crystal Technology

For further updates visit [www.displayweek.org](http://www.displayweek.org)

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**Special Event**

**Boston’s Museum of Science — Sponsored by Corning Incorporated**

Come join us on this special event to Boston’s Museum of Science and celebrate the 50th Anniversary of SID courtesy of Corning Incorporated on Wednesday evening, June 6. Attendees will dine amid high-tech devices, mingle among Meso-zoric creatures, and experience a journey to the stars. The Museum offers live presentations in digital 3D using their state-of-the-art 3D digital projection system that incorporates polarized light instead of the traditional red/blue lens filters. Truly one of the region’s most unique settings, the Museum offers novel surroundings and out-of-the-ordinary experiences that promise to intrigue and entertain. Buses will leave the Boston Convention and Exhibition Center between 6:30 and 6:45 pm on Wednesday evening to take attendees to the museum for the 7:00 start time. Buses will return after the event ends at 10:00 and drop off guests at each of the SID-blocked hotels (Westin and Seaport).

Tickets are $30 per person and can be purchased at the SID Registration Desk during Display Week.
# Display Week 2012 Overview

**Boston Convention & Exhibition Center, Boston, MA USA**  
**June 3–8, 2012**

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<tr>
<th>TIME</th>
<th>MONDAY</th>
<th>TUESDAY</th>
<th>WEDNESDAY</th>
<th>THURSDAY</th>
<th>FRIDAY</th>
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<tr>
<td>7:45 AM - 8:30 AM</td>
<td>Short Courses S1 &amp; S2</td>
<td>Welcome &amp; Keynote Addresses</td>
<td>Oral Sessions 21-26</td>
<td>Oral Sessions 39-44</td>
<td>Oral Sessions 63-68</td>
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<tr>
<td>9:00 AM - 10:00 AM</td>
<td>Business Conference</td>
<td>Oral Sessions 9-14</td>
<td>Designated Exhibit Time</td>
<td>Market Focus Conference: The Lighting Evolution</td>
<td>Future of Touch and Interactivity</td>
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<td>10:00 AM - 11:00 AM</td>
<td>Business Conference</td>
<td>Oral Sessions 15-20</td>
<td>Oral Sessions 33-38</td>
<td>Exhibitors/Exhibitors Sessions</td>
<td>Special Event</td>
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<td>11:00 AM - 12:00 PM</td>
<td>Business Conference</td>
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<td>Exhibitors/Exhibitors Sessions</td>
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### Display Week 2012 Symposium at a Glance

#### 2012 SID Display Week Symposium at a Glance – Boston Convention and Exhibition Center

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<th>Times</th>
<th>Ballroom East</th>
<th>Ballroom West</th>
<th>Room 205AB</th>
<th>Room 205C</th>
<th>Room 210A</th>
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<td>8:00 – 10:20</td>
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<td>10:50 – 12:10</td>
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<td>Oxide TFTs</td>
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<td>Blue-Phase Liquid Crystal</td>
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<td>Stereoscopic Display Applications (Joint with Applications)</td>
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<td>2:00 – 3:20</td>
<td>9</td>
<td>Oxide AMOLED Displays</td>
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<td>Blue-Phase Liquid Crystal</td>
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<td>Polarization-Based 3D Displays (Joint with Systems and Liquid Crystal)</td>
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<td>3:40 – 5:00</td>
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<td>AMOLED Displays</td>
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<td>Blue-Phase Liquid Crystal</td>
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<td>Autostereoscopic 3D Displays I (Joint with Systems)</td>
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<td>OLED Displays</td>
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<td>Liquid-Crystal Alignment I</td>
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<td>Autostereoscopic 3D Displays II (Joint with Applications)</td>
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<td>LC Lens for 3D Displays (Joint with Liquid Crystal)</td>
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<td>2:00 – 3:20</td>
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<td>OLED Devices</td>
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<td>Ferroelectric and Antiferroelectric LC Effects</td>
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<td>Solid-State Lighting III (Joint with Lighting)</td>
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<td>Lens Design for 3D Displays (Joint with Systems)</td>
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<td>Solid-State Lighting IV (Joint with Lighting)</td>
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<td>Volumetric, Lightfield, and Holographic Displays (Joint with Systems)</td>
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<td>4:30 – 5:30</td>
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<td>3D Comfort (Joint with Spheres)</td>
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<td>5:00 – 8:00</td>
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<td>Novel Display Devices</td>
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<td>3D Perception (Joint with Spheres)</td>
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<td>12:00 – 1:00</td>
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#### Technology Tracks Key

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