

OPTICAL BACKLIGHT DESIGNS

Tuesday, May 22 / 10:50 am – 12:10 pm / Room 104A

Chair:

John W. Parker, III, *Research and Engineering Development, Inc., Willow Street, PA, U.S.A.*

Co-Chair:

Paul T. Breen, Jr., *Applied Display Technology, Ogunquit, ME, U.S.A.*

- 5.1:** Twisted S-Shaped Light Pipe for Highly Efficient Coupling Between an LED and a Light Guide in a Backlight System (10:50)

*H. Suzuki, M. Higuchi, Y. Yang
Sony Corp., Kanagawa, Japan*

A twisted S-shaped light-pipe design has been developed to couple a LED and a light-guide, resulting in a thin light guide. This design suppresses optical loss while reducing the light-pipe form factor. An optical efficiency improvement of over 15% and a profile reduction from 0.60 to 0.30 mm was achieved.

- 5.2:** A Novel Diffractive Backlight Concept for Mobile Displays (11:10)

*J. Kimmel, T. Levola
Nokia Research Center, Tampere, Finland*

*P. Saarikko
Nokia Research Center, Helsinki, Finland*

*J. Bergquist
Nokia Japan, Tokyo, Japan*

A diffractive-optics backlight has been developed for use in mobile displays. This design directs the light in a spectrum-specific fashion through respective color pixels. A prototype model grating structure has been configured, and the results show efficient and color-specific outcoupling.

- 5.3:** A New Cost-Effective Optical Plate for High-Performance LCD TVs (11:30)

*J-W. Ha, J-W. Paek, T-S. Jang, J-S. Choi
Samsung Electronics Co., Ltd., Chungcheongnam-do, Korea*

*M-S. Jung
Bayer Sheet Korea, Kyungsangnam-do, Korea*

An optical plate employing a novel surface pattern has been developed. This design results in cost-effective manufacture while maintaining high performance. Luminance is uniformly distributed in a 46-in. LCD BLU while minimizing light leakage and enabling reduction of up to 24 CCFLs without requiring additional brightness-enhancement films.

- 5.4:** A Novel Glass Diffuser Plate for Large LCD TVs (11:50)

*M. Schiavoni, G. Counil, P. Gayout, J-L. Allano, F. Marandon
Saint-Gobain Recherche, Aubervilliers, France*

A novel glass diffuser plate has been developed for use in direct-type backlight systems. This design provides for the removal of the diffusing foil from the optical stack and a reduction in the number of light sources and significant cost reduction.

LUNCH (12:10–2:00)

AUTHOR INTERVIEWS (3:20–4:20)