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**STEREOSCOPIC AND 3-D IMAGING**

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Wednesday, May 23 / 3:30 – 4:50 pm / Room 104A

**Chair:**

**A. S. Seyno Sluyterman**, *Philips Lighting, Eindhoven, The Netherlands*

**Co-Chair:**

**Brian T. Schowengerdt**, *University of Washington, Seattle, WA, U.S.A.*

**28.1: Invited Paper: Multi-View 3-D Displays (3:30)**

*O. Willemsen, S. T. de Zwart, M. G. H. Hiddink,  
D. K. G. de Boer  
Philips Research Laboratories, Eindhoven, The Netherlands*

Resolution, brightness, uniformity, and cross-talk were examined in multiview barrier and lenticular 3-D displays. The barrier display has superior uniformity while the lenticular has superior brightness. For realistic barriers, diffraction increases cross-talk but does not change uniformity. Spherical aberrations in the cylindrical lens limit uniformity but do not affect cross-talk.

**28.2: Stereoscopic Near-to-Eye Display Using a Single Microdisplay (3:50)**

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

A planar waveguide for a stereoscopic near-to-eye display will be described. The system contains a single LCD microdisplay, using single image-formation optics. It is essential that the diffractive planar waveguide possess asymmetric grating profiles. An example of a design of a planar-waveguide-based optical engine is described.

**28.3: Dense Disparity Map Calculation from Color Stereo Images Using Edge Information (4:10)**

*J-S. Ku, H. Nam, C-Y. Pak, B-S. Kim, Y-G. Mo, H-W. Jang,  
H-K. Chung  
Samsung SDI Co., Ltd., Kyunggi-do, Korea*

A stereo-corresponding algorithm with edge preservation has been developed. A new cost function, SED (Sum of Edge Difference), was added to that of the conventional stereo-corresponding algorithm, SAD (Sum of Absolute Difference). The proposed algorithm is faster and successfully produces piecewise smooth disparity maps while preserving sharp depth discontinuities accurately.

**28.4: High-Resolution Stereoscopic TFT-LCD with Wire-Grid Polarizer (4:30)**

*J-H. Oh, D-H. Kang, W-H. Park, H-J. Kim, S-M. Hong  
J-H. Hur, J. Jang  
Kyung Hee University, Seoul, Korea*

*S-J. Lee, M-J. Kim, S-K. Kim, K-H. Park  
Pavonine, Inc., Incheon, Korea*

A 5.5-in. VGA stereoscopic 3-D display using wire-grid polarizers (WGPs) with rows of alternating polarization angle has been developed. WGPs are invisible without polarized glasses, enabling a 2-D/3-D configurable display. Unlike conventional stereoscopic displays, the display is free of limitations on viewing angle and distance, allowing multiple simultaneous viewers.

**BREAK (4:50–5:10)**

**AUTHOR INTERVIEWS (6:30–7:30)**