

**Session 32 Applied Vision/Display Systems**

**3-D DISPLAYS: VOLUMETRIC AND HUMAN FACTORS**

Wednesday, May 23 / 5:10 – 6:30 pm / Room 103

**Chair:**

**Ingrid Heynderickx**, *Philips Research Laboratories, Eindhoven, The Netherlands*

**Co-Chair:**

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

**32.1: Invited Paper: Human Stereoscopic Vision: Research Applications for 3-D TV (5:10)**

*W-J. Tam  
Communications Research Centre Canada, Ontario, Canada*

Three areas of research on human stereoscopic vision as applied to 3-D TV will be highlighted. Data on inter-ocular masking in stereoscopic vision and bandwidth reduction show the effects of disparity polarity on visual comfort and provide evidence for minimal-depth information required for depth-image-based rendering.

**32.2: Effect of Cross-Talk in Multi-View Autostereoscopic 3-D Displays on Perceived Image Quality (5:30)**

*R. Kaptein, I. Heynderickx  
Philips Research Laboratories, Eindhoven, The Netherlands*

The effect of cross-talk in multiview autostereoscopic 3-D displays on perceived image quality is assessed in two experiments. The first experiment shows that preference decreases with increasing cross-talk, but not as strong as expected. The second experiment shows that the cross-talk visibility threshold is higher than found in earlier studies.

**32.3: A New Approach to Electro-Holography for TV and Projection Displays (5:50)**

*A. Schwerdtner, N. Leister R. Haussler  
SeeReal Technologies GmbH, Dresden, Germany*

A novel electro-holographic display that enables large object reconstructions with a moderate-resolution spatial light modulator is proposed. The approach using a standard 20-in. LCD as a spatial light modulator for object reconstructions with a 20-in. diagonal was verified.

**32.4: Distinguished Student Paper: Development of a Scalable Volumetric Three-Dimensional Up-Conversion Display Medium (6:10)**

*J-H. Cho, M. Bass  
University of Central Florida, Orlando, FL, U.S.A.*

*H. Jenssen  
AC Materials, Inc., Tarpon Springs, FL, U.S.A.*

Several rare-earth-doped fluorides that are excited to emit visible light by sequential two-photon absorption have been investigated for use in volumetric three-dimensional displays. Dispersion of powders of these materials in a refractive-index-matched polymer will be reported because such a medium may result in a scalable display.

**AUTHOR INTERVIEWS (6:30–7:30)**