

Society of Motion Picture and Television Engineers

147<sup>th</sup> SMPTE Technical Conference  
2005

November 9 – 12, 2005  
New York City, New York, USA

**Printed from CD-ROM with permission by:**

Curran Associates, Inc.  
57 Morehouse Lane  
Red Hook, NY 12571  
[www.proceedings.com](http://www.proceedings.com)

**ISBN: 978-1-60423-623-1**

**Copyright 2006 Society of Motion Picture  
& Television Engineers and Video Services Forum.  
All rights reserved.**

**[www.smpete.org](http://www.smpete.org)**

**[www.videoservicesforum.org](http://www.videoservicesforum.org)**

**SMPTE Technical  
Conference & Exhibition**  
Hilton New York – November 9-12, 2005

**Table of Contents**

**HDTV Newsgathering – How about it?**

*Session Chair, Don Perez, KUSA-TV\*

- 1 XDCAM™ Professional Disc System for SD/HD Broadcast and Professional Applications, *Toru Suzuki, SONY***
  
- N/A\* Will Moore's Law Make HD News Technology More Affordable? *Ray Baldock and Ed Casaccia, Thomson Grass Valley***
  
- 5 Managing the Bandwidth Transition Requirements from Standard Definition (SD) to High Definition (HD)in Microwave Electronic News Gathering, *Michael Payne, MRC***
  
- 16 Building and End to End Workflow for HD News, *David Schleifer, Avid Technologies***
  
- 19 HD Graphics – What's the Big Deal? *Caren Anhder, Avid Technology (formerly Pinnacle Systems)***
  
- N/A\* A Real World View of HD News, *Don Perez, KUSA-TV***

**Media Infrastructure - MXF, GXF, and AAF**

*Chair: Hugo Gaggioni, Sony*

*Co-Chair: Bruce Devlin (Snell & Wilcox)*

- 22 Shared Metadata in the Broadcast Environment, *Jamie Meyer, Pathfire***
  
- 29 Schedule Metadata Flow – the times they are a changin', *Chris Lennon, Harris***
  
- N/A\* Storing User Metadata in MXF (and other) Files, *Oliver Morgan, Metaglobe Corp***
  
- 34 What Grass Valley learned from GXF and how it can help everyone, *Bob Edge, Grass Valley***
  
- 40 MPEG2 Long GOP Mapping for MXF file storage applications, *Jim Wilkinson, Sony***

## **Digital Motion Imaging Production – New Small-Format HD Acquisition Formats**

*Chair: Theresa Alesso, Sony Electronics*

*Co-Chair: Bob Mueller, JVC*

- 59     Magnetic Tape Requirements of HDV Recording with MPEG-2 Compression,**  
*Wayne Desmond, Hideki Kikuchi, and Steve Tice, Sony Electronics*
  
- 65     The Optics of Small-Format HD Acquisition,** *Mark Schubin, Consultant*
  
- 75     2005 Van Cliburn Piano Competition - HDV Shooting,** *Molly McBride, Sathya Productions Services*
  
- N/A\*   Development of high-performance HDV devices based on the 1080 HD format for acquisition and production applications,** *Juan Martinez, Sony*
  
- N/A\*   Canon Digital Signal Processing Method for Video and Photo and Multi-Track Audio Recording Methods using HD and HDV Formats,** *Joseph Bogacz, Canon Inc.*

## **Sharpening Your Storage IQ**

*Chair: Al Kovalick, Pinnacle Systems*

- 80     Storage I/O Acceleration for Real-time Digital Media Production Environment,** *Ji Zhang, Exavio, Inc.*
  
- N/A\*   *New Technologies for Accelerating File Transfers across WAN Links,*** *Balraj Singh, Juniper Networks, Inc.*
  
- N/A\*   *The Future of Shared Storage,*** *Mike Rockwell, Avid Technologies*
  
- N/A\*   *"MXF Aware" - Data Tape Storage for Video Archives,*** *Mark Ostlund, Quantum Corp.*
  
- 93     *Holographic Storage - Breakthroughs for the 21st Century,*** *Liz Murphy, InPhase Technologies*
  
- 97     *Architecting Digital Content Storage Systems & Archives,*** *Tom Inglefield, StorageTek*

## **Digital Motion Imaging Production – Recent Advances**

*Chair, Robert Siedel (CBS)*

- 102** **High Definition does not equal two times standard definition!** *Dave Guerrero, Videotek*
- 108** **Development of a Three CMOS 1080p/300fps HDTV High Speed Camera,** *Masakatsu Gotoh, et al, NAC Image Technology Inc.*
- N/A\*** **Tapeless HD Camcorder,** *Alan Keil, Ikegami*
- N/A\*** **Technologies for a High Definition Optical camcorder utilizing XDCAM Professional Optical Disc Storage Media,** *Hugo Gaggioni, Sony*
- N/A\*** **Panasonic P2 HD Camcorder,** *Steve Mahrer, Panasonic*
- 114** **Development of Compact Motion Control Camera System for HD Digital Broadcasting,** *Hiroyasu Masuda, NHK (Japan Broadcasting Corporation)*

## **Sound in the Digital Era**

*Chair: Tomlinson Holman (TMH Corporation)*

- 124** **The X-Curve, its origins and history,** *Ioan Allen, Dolby Laboratories*
- 150** **Cinema Sound Quality Redux,** *Tomlinson Holman, USCA Schools of Cinema/Television Engineering*
- 179** **DC-PCM, an Audio Packaging Proposal for D-Cinema,** *Stan Cossette and Pierre Lemieux, Dolby Laboratories*
- N/A\*** **Dolby Metadata Woes? Standardization to the rescue!,** *Orest Holyk, Evertz Microsystems Ltd.*
- N/A\*** **Managing Multi-Channel Audio in Master Control,** *Birney Dayton, Nvision*
- N/A\*** **Dynamic Range Realities for Digital Television Audio,** *Tim Carroll, Linear Acoustic Inc*

## **Digital Imaging Production - New Large Sensor Systems**

*Chair: Stephen A. Stough (Lockheed Martin)*

*Co-Chair: Volker Bahnemann (ARRI)*

- 188 **Trade Analysis of Large Sensors for Digital Cine Acquisition Cameras**, *William A. Hill, Steve Persall, Robert McGriff, Lockheed Martin, Integrated Systems & Solutions*
- N/A\* **The European IP-RACINE Project for Electronic Cinema - a Participant's Report**, *Dave Bancroft, Peter Centen, Dieter Haupt, Jan van Rooy, and Jens Peter Wittenburg, Thomson*
- N/A\* **Initial Experience with a Film-Style Digital Camera**, *Lovell/ Koppetz, ARRI*
- 201 **Advanced Research in Ultra-High Density Non-magnetic On-camera Storage**, *Robert McGriff, Lockheed Martin and William Oakley, Nanoscale Storage Solutions*
- N/A\* **High Dynamic Range Data Centric Workflow System**, *Lucian Ion, Alan Lasky, John Coghill, DALSA Digital Cinema*
- N/A\* **If Film is Dead, is Video Far Behind?**, *John Galt, James Pearman, Panavision*

## **Consuming Content - An Unquenchable Thirst**

*Chair: Mike Tsinberg (Key Digital Systems)*

- N/A\* **Advanced Video Capabilities of HD DVD-Video**, *Kilroy Hughes, Microsoft Corporation*
- N/A\* **Enabling Digital Home Media Distribution with HDMI**, *Stevan Eidson, Silicon Image, Inc*
- N/A\* **Enabling Multiroom DVR via the Home Entertainment Network**, *Ladd Wardani, MoCA*
- 213 **CEA and Home Entertainment Networking – Filling In The Gaps**, *Bill Rose, WJR Consulting, Inc.*
- N/A\* **Blu-ray: New Opportunities and Challenges**, *Don Eklund, BluRay Disc Association*

## **Advances in Motion Picture Film Technologies**

*Chair: Chris DuMont (Eastman Kodak)*

- 220 **Latest Technology of Motion Picture Color Negative Film**, *Tetuo Kikuchi, Fuji Photo Film*
- 224 **Spatial Aliasing and Reconstruction Artifacts in Digital Intermediates**, *Gabriel Fielding, Ryan Hsu, Paul Jones, and Chris Dumont, Eastman Kodak*

- 239 **Designing Camera Origination Films for Scan-Only Applications in Television and Digital Intermediate**, David Long, Tom Maier, Eastman Kodak
- 250 **Motion Compensated Spatial-Temporal Reduction of Film Grain Noise in the Wavelet Domain**, Stefan Eichner, et al, Technical University of Ilmenau
- N/A\* **Bringing Film Classics Back to Life**, Simon Lund and Dan DeVincent, Cineric, and Schawn Belston, 20th Century Fox.

## **Content Protection - Preserving and Sharing Rights in a Digital World**

*Chair: James M. Burger, Law Firm of Dow, Lohnes & Albertson*

*Co-Chair: C. Bradley Hunt, Motion Picture Association of America*

- N/A\* **Designing and Marketing Technologies in a Post-Grokster World: An Analysis of the "Active Inducement" Standard for Copyright Infringement**, Kathleen E. Fuller, Esq., Dow, Lohnes & Albertson, PLLC
- N/A\* **MGM v. Grokster: A Supreme Court Ruling Protective of Constructive Innovation**, Troy Dow, The Walt Disney Company,
- 258 **DRMs and High Value Video Content Business Models**, David P. Beddow, Movielink, LLC
- 268 **Protecting D-Cinema Content**, Pierre-Anthony Lemieux, Dolby Laboratories
- 275 **Content Protection Protocols in Digital Living Network Alliance Home Networked Device Interoperability Guideline**, Florian Pestoni, Microsoft Corporation

**An Overview of the Advanced Access Content System**, Alan Bell, Warner Bros.

## **Managing IP-Centric Television - Trends in the Digital Broadcast Plant**

- 280 **No Turning Back – IT & IP in the Broadcast Environment**, Danny Wilson, Pixelmetrix Corporation
- N/A\* **Master Control as a Compressed IP Environment**, Michael Adams, Terayon Communication Systems
- N/A\* **Next generation hybrid playout infrastructure**, Charles Morin and Stéphane Blondin, Snell & Wilcox

**N/A\*** **Adaptable Multi-Track Annotation for Repurposing Assets**, *John Wadle, OmniBus Systems*

**286** **Video Quality Monitoring over IP Networks**, *Henry Sariowan, Path 1 Network Technologies*

## **Display Technologies: Fixed Pixel Displays Go Mainstream**

*Chair, Peter Putman, CTS (ROAM Consulting Inc.)*

**N/A\*** **Implementation of the First Commercially Available 4K Resolution Projector**, *Gary Mandle, Sony Electronics Inc.*

**298** **Overview of TFT LCD Technology**, *Pete Putman, Roam Consulting*

**N/A\*** **Evaluating the Performance of Fixed Pixel Displays**, *Jed Deame, Teranex Division Silicon Optix Inc.*

**303** **Full HD 1920 x 1080 Pixel Digital D-ILA Microdisplay Technology**, *William Bleha, JVC North America R&D*

**N/A\*** **Plasma Display Image Quality Advances**, *Bill Schindler, Panasonic*

**\* Paper not available**

© All documents on this CD-ROM are copyrighted by SMPTE and their respective authors. Any use of information contained herewith without permission from SMPTE and the respective author is prohibited.