

# 2014 Annual Technical Conference Program

## Tuesday, 21 October

**08:30 – 08:45**

### Welcome and Introduction

Rooms: Salon 1, Salon 2

**08:45 – 09:45**

### Opening Keynote

Rooms: Salon 1, Salon 2

Speaker: **Chris Fetner** (Director of Global Content Partners Association, Netflix USA)

**09:45 – 10:15**

### Break

Rooms: Salon 1, Salon 2

**10:15 – 12:15**

### Networked Media in the Facility *Part 1*

Room: Salon 1

Chair: **Al Kovalick** (Media Systems Consulting, USA)

This session, part one of three, focuses on using packetized methods to move media and metadata in realtime over networks. Presenters will cover Ethernet and IP methods to build production and broadcast environments and consider techniques for establishing common device clocks, video sync, frame accurate switching and AV transport. A mix of detailed technology review, tutorials, and case studies will also be presented. Don't miss this firsthand look at the media facility of the future.

**10:15: Ethernet AVB Standards Overview and Status**

**Jan Eveleens** (Axon, The Netherlands)

**10:45: Internet Protocol Networks in the Live Broadcast Plant**

**Ken Buttle, Sara Kudrle, and Charles Meyer** (Grass Valley, USA)

**11:15: IP Live Production**

**Toshiaki Kojima** (Sony Corp., Japan); **John Stone** (Sony, U.K.); **Paul N. Gardiner** (Sony Europe Ltd., U.K.)

**11:45: IP for Contribution Broadcasting: The Next Step of IP Ubiquity**

**Chin Chye Koh** (Nevion USA)

### Video Compression

Room: Salon 2

Chair: **John P. Maizels** (Entropy Enterprises, Australia)

**10:15: An Adaptive Threshold Selection Technique in Video Compression by Using FHW and Evolutionary Programming**

**H. Rajasekhar** (Jawaharlal Nehru Technological University, India)

**10:45: Perceptual Video Quality Analysis for HEVC in a Packet Loss Environment**

**Bhupender Kumar, Shekhar Madnani, Advait M. Mogre, Shailesh Kumar, and Muneesh Sharma** (Interra Systems, India)

**11:15: Improving Video Streaming and File Compression Efficiency without Affecting Quality**

**Yves Faroudja** (Faroudja Enterprises, USA)

**11:45: State of HEVC Bit Rates in 2014—Comparing HEVC, H.264 and MPEG-2**

**John Pallett** (Telestream, Inc., USA)

**12:30 – 14:00**

### Industry Luncheon

Room: The Annex

Keynote: **Mark Aitken** (Vice President of Advanced Technology, Sinclair, USA)

**14:15 – 15:45**

### Networked Media in the Facility *Part 2*

Room: Salon 1

Chair: **Al Kovalick** (Media Systems Consulting, USA)

This session, part two of three, focuses on using packetized methods to move media and metadata in realtime over networks. Presenters will cover Ethernet and IP methods to build production and broadcast environments and consider techniques for establishing common device clocks, video sync, frame accurate switching and AV transport. A mix of detailed technology review, tutorials, and case studies will also be presented. Don't miss this firsthand look at the media facility of the future.

**14:15: The Fundamentals of the Professional Networked Media Ecosystem**

**Al Kovalick** (Media Systems Consulting, USA)

**14:45: Can COTS Ethernet Switches Handle Uncompressed Video?**

**Thomas Edwards** (Fox Network Engineering & Operations, USA);

**Brian Keane** (Aperi Corp., USA)

**15:15: Next Gen Post Production Workflows and Enabling Infrastructure**

**Brinton Miller** (Discovery Communications, USA);

**Ammar Latif** (Cisco Systems, USA)

### Developments in Audio Technology *Part 1: Tools for Immersive Audio*

Room: Salon 2

Chair: **Jerry C. Whitaker** (Advanced Television Systems Committee, USA)

Immersive audio has emerged as a powerful force in storytelling. The addition of spatial information enables new creative possibilities that can provide a greater sense of immersion and a higher level of reality to the cinema experience—and before long, to the home as well. This session examines some of the fundamental elements that go into immersive audio, including sound scene description, management of complex sound scenes, and manipulation of object-based sound elements. The techniques and developments described will propel the "suspension of disbelief" that is at the center of the cinema experience.

**14:15: Cinematic Sound Scene Description and Rendering Control**

**Charles Robinson and Nicolas Tsingos** (Dolby Laboratories, USA)

**14:45: Immersive Audio Systems and the Management of Consequent Sounds**

**William Redmann** (Technicolor, USA)

**15:15: Object-Based Audio: Opportunities for Improved Listening Experience and Increased Listener Involvement**

**Robert Bleidt** (Fraunhofer USA, USA); **S. Merrill Weiss** (Merrill Weiss Group LLC, USA)



**15:45 – 16:15**

**Coffee Break**

Rooms: Salon 1, Salon 2

**16:15 – 17:45**

**Networked Media in the Facility Part 3**

Room: Salon 1

Chair: **Al Kovalick** (Media Systems Consulting, USA)

This session, part three of three, focuses on using packetized methods to move media and metadata in realtime over networks. Presenters will cover Ethernet and IP methods to build production and broadcast environments and consider techniques for establishing common device clocks, video sync, frame accurate switching and AV transport. A mix of detailed technology review, tutorials, and case studies will also be presented. Don't miss this firsthand look at the media facility of the future.

**16:15: Network Delivered References—Under the Hood and Across the System**

**Paul Briscoe** (Consultant & SMPTE, IEEE, Canada)

**16:45: Generating Synchronous Video Signals From Just Time**

**J. Patrick Waddell** (Harmonic Inc., USA)

**17:15: PTP Deployment in Large Networks—Traps and Pitfalls**

**Nikolaus Kerö** (Oregano Systems, Austria); **Thomas Kernen** (Cisco, Switzerland); **Tobias Müller** (University of Applied Sciences Technikum Wien, Austria);

**Developments in Audio Technology Part 2:**

**Delivering on the Promise**

Room: Salon 2

Chair: **Jerry C. Whitaker** (Advanced Television Systems Committee, USA)

New audio services represent new opportunities for content producers, and new ways of enjoying programming for consumers. This new technology, of course, is of little value if it doesn't find its way through the long and sometimes very complex chain that stretches from the microphone on the stage to the speakers in the home. This session examines some important elements that comprise parts of this chain, including interchange, distribution and delivery of immersive audio; a detailed examination of loudness vs. speech normalization; and methods of reducing audio transmission impairment. Designing an advanced audio system and getting it to work efficiently in a wide variety of applications is a major challenge. Join us as we examine ways to address this challenge.

**16:15: Immersive and Personalized Audio: A Practical System for Enabling Interchange, Distribution and Delivery of Next Generation Audio Experiences**

**Jeffrey Riedmiller, Sripal Mehta, and Nicolas Tsingos** (Dolby Laboratories, USA); **Prinyar Boon** (Dolby Europe Ltd., U.K.)

**16:45: Loudness vs. Speech Normalization in Broadcast**

**Thomas Lund** (TC Electronic A/S, Denmark)

**17:15: Digital Audio Transmission Impairment and Link Failure: Test Data, and Recommendations for Improved Industry Standards and Reference Designs**

**Jon D. Paul** (Scientific Conversion, Inc.)

**18:00 – 20:00**

**Welcome Reception**

Room: Exhibit Hall

**20:00 – 22:00**

**Student Film Showcase**

Room: Salon 1

## Wednesday, 22 October

**07:30 – 08:30**

**Morning Coffee**

Rooms: Salon 1, Salon 2

**08:30 – 10:30**

**File-Based Workflows Part 1**

Room: Salon 1

Chair: **Sara Kudrle** (Grass Valley, a Belden Brand; SMPTE Western Region Governor, USA)

File-based workflows are evolving and encompassing more and more formats, options, rules and methods for transport. This session will first provide an overview of activities within the Joint Task Force on Networked Media and then consider emerging tools that are enriching our workflows, such as automatic format conversion, closed captioning management, and compression of legacy interlaced formats.

**08:30: Addressing Issues in File-Based Workflows: the Joint Task Force on File Formats and Media Interoperability**

**Clyde Smith** (Fox Network Engineering & Operations, USA); **Thomas Bause Mason** (NBCUniversal, USA); **Harold Geller** (Advertising Digital Identification, LLC (Ad-ID), USA); **Christopher J. Lennon** (MediaAnswers, USA)

**09:00: Re-inventing the Wheel or Choosing the Right One for the Job? Frame Rate Manipulation for the File-age**

**Bruce Devlin** (Dalet, U.K.); **Simon Adler** (Dalet, USA)

**09:30: Automating Closed Caption Verification, Timing, and Language Identification**

**Drew Lanham** (Nexidia, USA)

**10:00: HEVC Efficiency Assessment for Contribution Services of Interlaced Content**

**Juan Jose Anaya** (SAPEC, Spain); **Damian Ruiz** (Universitat Politècnica de València, Spain)

# 2014 Annual Technical Conference Program

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**08:30 – 09:30**

## **Dammit Gamut, I Love You**

Room: Salon 2

Co-chairs: **Arjun Ramamurthy** (20th Century Fox, USA);

**Kevin Stec** (Dynamic Digital Depth, Inc., USA)

This session looks into the challenges of extending the color gamut and dynamic range for next-generation imaging systems, including UHD TV. Issues such as how to maintain creative intent, how to color match between HDTV and wide gamut UHD TV displays, how to assess the quality of color conversions, and how to view the results of color and dynamic range conversions.

**08:30: Color Management for Wide-Color-Gamut UHD TV Production**

**Kenichiro Masaoka, Takayuki Yamashita Yukiko Iwasaki, Yukihiro Nishida, and Masayuki Sugawara** (Japan Broadcasting Corp., (NHK) Japan)

**09:00: Quality Assessment Framework for Color Conversions and Perception**

**François Helt and Valerie La Torre** (Highlands Technologies Solutions, France)

**09:30: A Better Color Matching Between HD and UHD Displays**

**Lars Borg** (Adobe, USA)

**10:00: High Dynamic Range Intermediate**

**Gary Demos** (Image Essence LLC, USA)

**08:30 – 10:00**

## **Cinema Workflow: A Brief Moment in Time**

Room: Theatre (Chinese 6)

Chair: **Kevin Wines** (Doremi Labs, USA)

Fans of the new TV series “Cosmos” will agree the producers have presented the vast intricacies and marvels of our universe in a remarkably engaging and understandable way. Physicists have gained very high-level and consistent knowledge of the incredibly complex mechanisms of nature over the past decade.

Ah, if only cinema workflows were as simple to understand... It kind of reminds us of dark matter—We know it's there. We know it affects us in innumerable ways, and we can't consistently describe its attributes or how it affects everything else around it. Further, just like our knowledge of the universe, cinema workflows are ever-changing; giving new challenge to our skills and understanding of the process.

In this session, presenters will help us explore and better understand a few of the “dark” areas of cinema workflow, and hopefully, in the end, we will be one step closer to a “unified theory” of cinema workflow.

**08:30: Camera Raw Workflows—Like Film, But Digital**

**Ed Reuss** (Unaffiliated, USA); **Lars Borg** (Adobe, USA)

**09:00: Advances in Fully Immersive Theatrical Sound Mixing Workflows**

**Tom Graham and Rich Nevens** (Avid, USA); **Jonathan Wales** (Sonic Magic, USA)

**09:30: Options for Camera Raw in the Digital Workflow**

**Keith Hogan** (Pixspan, Inc., USA)

**10:30 – 11:00**

## **Coffee Break**

Rooms: Salon 1, Salon 2

**11:00 – 12:30**

## **File-Based Workflows Part 2**

Room: Salon 1

Chair: **Sara Kudrle** (Grass Valley, a Belden Brand; SMPTE Western Region Governor, USA)

As our workflows extend to other devices and second screens, we need to get an even better handle on managing our media. This session will start with a method of facilitating complex workflows by first identifying our media in a meaningful manner. From there, the session will expand and explore the management and migration of media to other devices and second screens.

**11:00: Identifying Media in the Modern Era - The Domains of Media Identity**

**Steven Posick** (ESPN Inc., USA)

**11:30: Today's Smarter Workflow: Managing and Delivering Assets to All Devices**

**Petter Jakobsen** (Vizrt, USA)

**12:00: Remote Content Access and the Rise of the Second Screen**

**Luc Doneux** (Sports, EVS, Belgium); **James Stellpflug** (EVS, The Americas, USA)

## **Higher Frame Rates**

Room: Salon 2

Chair: **Jim DeFilippis** (TMS Consulting, USA)

This session will address the question, “Is Faster Better?” The papers will address the challenges, benefits and solutions when working at frame rates beyond 60Hz, including both video and “HFR” cinema formats. It will address frame rate conversion from 120 fps to 50, 60(59.94), and 100 fps video formats, as well as 60, 30, and 24 fps D-Cinema formats.

**11:00: 120 fps Capture as a Universal, Open Production Standard**

**David Richards** (Moving Image Technologies, USA)

**11:30: High Frame Rate Video Conversion**

**Paola Hobson** (InSync Technology Ltd., U.K.)

**12:00: Quality Advancements and Automation Challenges in File-based Conversion: Noise-Reduction, Deinterlacing, High Frame Rates, and Compression Efficiency**

**Keith Slavin and Chad Fogg** (Isovideo, LLC, USA)

**12:30 – 14:00**

## **Fellows Luncheon**

Room: Vantage Room

Keynote: **Darcy Antonellis** (Chief Executive Officer, Vubiquity)



## 14:15 – 15:45

### Cloud Case Studies – The Reality of Virtualization

Room: Salon 1

Chair: **Richard J. Welsh** (Sundog Media Toolkit, U.K.)

Deployment of content services in the cloud has moved rapidly from "if and when" to "how." This session explores a wide range of real-world implementations of cloud-based services, investigating the important topics of integration, deployment and security. From production to realtime delivery of live content, we will lift the lid on practical roll-out of services, learn about the technical challenges faced and hear how they were overcome. All elements of cloud architecture will be covered, including public vs private infrastructure, applications and networks, service monitoring, scaling systems and security controls. As the media industry migrates services and technology to the cloud, we hope to answer the big questions of performance and protection.

#### 14:15: Alternate to Big Cloud Providers: Case Studies on Private/Hybrid Cloud Use

**Brian Campanotti** (Front Porch Digital, USA)

#### 14:35: End-to-End Live Streaming Platform for Second Screen Combining Multi-Camera Capture, High-Speed Transport, and Cloud Video Processing

**Michelle Munson** (Aspera, USA)

#### 14:55: Securing Media Content and Applications in the Cloud

**Bhavik Vyas and Usman Shakeel** (Amazon Web Services, USA)

#### 15:15: Is the Future of Content Protection Cloud(y)?

**Eric Diehl** (Technicolor, France)

### Display Technologies: Where Do We Go From Here (And How Do We Measure What We've Already Got?)

Room: Salon 2

Chair: **Peter H. Putman** (Kramer Electronics, USA)

It's all about the display! These are very interesting times for display technology with UHDTV taking the stage, LCD panel prices plummeting, and consumers watching on everything from smartphones and tablets to ever-larger flat panel televisions. But many challenges remain. In this session, we'll learn about the myriad of display performance measurements and what they represent (such as luminous energy, luminous power, luminous intensity, illuminance, luminance, luminous exposure, and luminous efficacy!) The topic of next-generation display interfaces will also be addressed, covering the latest versions of HDMI, DisplayPort, and the numerous variations on each standard. The session will conclude with a discussion of quantum dots, a new backlighting system for achieving the wider color gamuts required for UHDTV.

#### 14:15: A Tutorial on Photometric Dimensions and Units

**George Joblove** (Consultant, USA)

#### 14:45: Next-Generation Display Interfaces

**Peter H. Putman** (Kramer Electronics, USA)

#### 15:15: Quantum Dots and Rec. 2020—Bringing the Color of Tomorrow Closer to Reality Today

**Jimmy Thielen, James Hillis, John Van Derlofske, Dave Lamb, and Art Lathrop** (3M Company, USA)

## 15:45 – 16:15

### Coffee Break

Rooms: Salon 1, Salon 2

## 16:15 – 17:45

### Developments in Audio Technology Part 3: Diving into the Details

Room: Salon 1

Chair: **Jerry C. Whitaker** (Advanced Television Systems Committee, USA)

We've come a very long way in moving digital audio from a new, complex technology to an essential element of everyday life. With all of the progress made so far, many challenges remain. This session will examine leading-edge work on audio data management and analysis, and consider what's next in advanced digital audio consoles. We will wrap up the audio session with a fascinating look at the origins of audio and video compression—technologies that literally reshaped content production and consumption. What does the past say about the future? We'll find out.

#### 16:15: Utilizing Unique Information from File-Based Media for Automated File Detection

**Michael Babbitt** (Dolby Laboratories, USA)

#### 16:45: Large-Scale Audio Processing, Which Chips?

**Andrew Hills** (Studer Professional Audio GmbH, Switzerland)

#### 17:15: The Origins of Audio and Video Compression: Some Pale Gleams From the Past; A Historical Perspective on Early Speech Synthesis and Scramblers

**Jon D. Paul** (Scientific Conversion, Inc., USA)

### UHDTV: Building The Plane In Flight

Room: Salon 2

Chair: **Peter H. Putman** (Kramer Electronics, USA)

Advancements in UHDTV continue as we "build the plane in flight." Even though consumers can already buy 4K TVs at reasonable prices and content producers and delivery systems are ramping up, not all of the parts of the 4K ecosystem are in place yet. In this session, we'll learn about a system to produce simultaneous 8K, 4K, and 2K video in realtime, from a single 4K camera. We'll also hear about the challenges of transporting 4K (12 Gb/s) video over single-link coax and how it could be accomplished. The session will wrap up with a discussion about viewing 4K and UHD content in a largely 2K world as the infrastructure for 4K evolves.

#### 16:15: Development of Super Hi-Vision (8K) Baseband Processor Unit "BPU-8000"

**Kenichiro Ichikawa, Seiji Mitsuhashi, Mayumi Abe, Akira Hanada, and Kohji Mitani** (Japan Broadcasting Corp., (NHK) Japan);  
**Mitsutoshi Kanetsuka** (Content Creation Solution Business Div. & Sony Corp., Japan)

#### 16:45: Further Developments in 4K (12 GHz) Single-Link Coaxial Cable

**Stephen H. Lampen** (Belden, USA)

#### 17:15: Viewing 4K and UHD in an HD World

**Josef Marc** (Archimedia Technology Inc., USA)

# 2014 Annual Technical Conference Program

**18:00 – 18:30**

## **Annual Membership Meeting**

Rooms: Salon 1, Salon 2

## Thursday, 23 October

**07:30 – 08:30**

### **Morning Coffee**

Rooms: Salon 1, Salon 2

**08:30 – 10:30**

### **Asset Management Part 1**

Room: Salon 1

Chair: **Paul Chapman** (Foto-Kem Industries Inc., USA)

**08:30: 2014 Survey of Digital Storage in Professional Media and Entertainment**

**Thomas Coughlin** (Coughlin Associates, USA)

**09:00: LTFS Transforms LTO Tape into Nearline Storage: Accelerating 4K Media Workflows**

**Tridib Chakravarty** (StorageDNA, USA)

**09:30: Concept for a File-Based Content Exchange Ecosystem Using Scalable Media**

**Heiko Sparenberg and Siegfried Foessel** (Fraunhofer IIS, Germany)

**10:00: A Holistic Approach to Digital Preservation**

**Bjørn Brudeli** (Piq AS, Norway)

### **IP Streams, Control, and Production**

Room: Salon 2

Chair: **Thomas Edwards** (Fox Network Engineering & Operations, USA)

This session presents a spectrum of the use of IP in broadcast: from video streams, to control & monitoring, and in applied real-world use in remote production.

**08:30: Off-the-shelf IP Routing Switchers in the Hybrid IP/SDI Television Broadcast Environment**

**John Shike and Martin Holmes** (Snell, Inc. USA)

**09:00: The Control of Media within an Internet of Things using SMPTE ST2071**

**Steven Posick** (ESPN Inc., USA)

**09:30: Monitoring Video Services in an IP Connected World**

**Chuck Wester, Yasser F. Syed and Joseph Badro** (Comcast, USA)

**10:00: Taking Remote Production to the Next Level—CBC's Coverage of the 2014 Sochi Olympic Games**

**Jeffrey Vella and Brian Johnson** (Canadian Broadcasting Corp., Canada)

**08:30 – 10:00**

### **Advancements in Theatrical Displays**

Room: Theatre (Chinese 6)

Chair: **Peter Ludé** (Consultant, USA)

Cinema projector technology is currently undergoing a period of dramatic innovation. Rather than using traditional xenon short-arc lamps, new laser illuminated projector systems are being developed to provide enhanced images, including an expanded image dynamic range and wider color gamut. This session will explore how laser illumination holds the potential for blacker blacks and brighter highlights, as well as practical limitations of the technology. You will learn how laser light can be used to expand the color gamut, and the impact of metamerism in the perception of color. Laser speckle is an undesired attribute of this new technology, but measuring speckle is challenging. You will learn the latest advancements in speckle measurement techniques necessary for image-quality assurance. In addition, this session will include a presentation on the findings of an important new study on viewer preference, which explores the perceptual impact of expanded image dynamic range in the cinema.

**08:30: Viewer Preferences for Cinema Luminance Dynamic Range**

**Suzanne Farrell, Scott Daly, and Timo Kunkel** (Dolby Laboratories, Inc. USA)

**09:00: Development of an Accurate and Repeatable Measurement Method for Speckle in Laser Illuminated Projectors**

**Rick Posch** (CR Media Technologies, USA); **Peter Ludé** (Consultant, USA)

**09:30: Design Considerations for Cinema Exhibition Using Laser Illumination**

**Jim Houston** (Starwatcher Digital, USA); **Bill Beck** (BTM Consulting, USA)

**10:30 – 11:00**

### **Coffee Break**

Rooms: Salon 1, Salon 2

**11:00 – 12:30**

### **Asset Management Part 2**

Room: Salon 1

Chair: **S. Merrill Weiss** (Merrill Weiss Group LLC, USA)

**11:00: Media Archiving, Standards and the Library of Congress**

**James Snyder** (Library of Congress, USA)

**11:30: Applying AXF Tools from the Set through Production Workflows**

**S. Merrill Weiss** (Merrill Weiss Group LLC, USA)

**12:00: Open Standards Approach for Video and Film Archiving and Preservation**

**Brian Campanotti** (Front Porch Digital, USA)



## Content Accountability, Tracking and Protection

Room: Salon 2

Chair: **Arjun Ramamurthy** (20th Century Fox, USA)

The focus of our supply chain is geared toward producing content and the distribution of the said content to consumers. Along the way, we need to ensure that the content is secure, and especially more so when considering highly collaborative workflows, geographically dispersed workgroups, and production in the cloud. Additionally, when the content is consumed, it is vitally necessary to have accurate monitoring on where, how and when it is consumed.

This session brings together these vital aspects in three papers. The authors of the first paper will discuss the modalities of media management and measurement. The second paper will discuss how piracy can be curtailed using forensic watermarking, and finally, the last paper, will bring us solace in knowing that while cyberattacks will occur, we can survive them by making our production pipelines cyber reliant.

### 11:00: How Do We Measure Up?

**Christopher J. Lennon** (MediAnswers, USA); **Harold Geller** (Advertising Digital Identification, LLC (Ad-ID), USA); **Clyde Smith** (Fox Networks Engineering & Operations, USA)

### 11:30: Extending Content Protection Beyond End-user Digital Rights Management and to the Full Digital-Content Lifecycle

**Ken Rudman** (Civolution, USA)

### 12:00: Not Every Cyber Attack Can Be Stopped, But They Can Be Survived

**Chris Morales** (NSS Labs, Inc., USA)

## 12:30 – 14:00

### Boxed Lunch

Room: Exhibit Hall

## 14:00 – 15:30

### Image Processing Part 1: Methods for Creating High-Quality Images Beyond HD

Room: Salon 1

Chair: **Siegfried Foessel** (Fraunhofer IIS, Germany)

Displays today are able to reproduce higher resolutions, higher frame rates and higher dynamic range than ever before. The question is how can we generate, up-convert or preserve high-quality images from image acquisition up to the display. In our first presentation, a new algorithm for improving the edges in images will be presented. It can be used for up-converting or sharpening images. The second presentation addresses the issue that motion during capturing of images can destroy a high resolution and will give recommendations on how to preserve the details. The third presentation will cover the question of which imager technology is available today and how it can be used in different production and delivery workflows.

### 14:00: Realtime Super Resolution for 4K/8K with Non-linear Signal Processing

**Seiichi Goshi** (Kogakuin University, Japan)

### 14:30: 4K: Model for Motion Control to Ensure True 4K Detail at Capture

**Pierre Routhier** (Technicolor, USA)

### 15:00: Beyond HD—The Status of the Image Acquisition Solutions for the Next-Generation Broadcasting Formats

**Klaus Weber** (Grass Valley & A Belden Brand, Germany)

## Evolution of Broadcast Facilities Part 1

Room: Salon 2

Chair: **Harvey Arnold** (Sinclair Broadcast Group, USA)

### 14:00: IP to the Camera: Completing the Broadcast Chain

**Jim Jachetta** (VidOvation—Moving Video Forward, USA)

### 14:30: Signal Monitoring: Any Time, Any Where, Any Way

**Steve Farmer** (Wohler Technologies, USA)

### 15:00: IPTV in CNN's Newsroom: A Productivity Breakthrough

**Bob Baker** (Turner Broadcasting, USA); **Wes Simpson** (Telecom Product Consulting, USA)

## 15:30 – 16:00

### Coffee Break

Rooms: Salon 1, Salon 2

## 16:00 – 17:00

### Image Processing Part 2: Reducing Distortions in Captured Images

Room: Salon 1

Chair: **Siegfried Foessel** (Fraunhofer IIS, Germany)

Image capturing is always restricted by physical and technological limitations. This can be the sampling process or the existing capture and storing technology at the time of capturing. The presentation will investigate the influence of sampling to the quality of later displayed images.

### 16:00: A Psychophysical Study Isolating Judder using Fundamental Signals

**Scott Daly, Ning Xu, and James Crenshaw** (Dolby Laboratories, Inc., USA); **Vickrant Zunjarrao** (Microsoft, USA)

## Evolution of Broadcast Facilities Part 2

Room: Salon 2

Chair: **Harvey Arnold** (Sinclair Broadcast Group, USA)

### 16:30: IT-TV-Live—An Integrated Concept for IP-based Distributed Broadcast Production with “SDI Quality”

**Alfred Krug** (Scalable Video Systems GmbH, Germany)

## 19:00 – 22:00

### Honors & Awards Ceremony and Dinner

Hollywood Ballroom

## 22:00 – 23:59

### Afterparty and SMPTE Jam

Hollywood Ballroom

***This program is subject to change.***