High dynamic range (HDR) and wide colour gamut (WCG) are important emerging technologies across the whole video production pipeline: acquisition, CGI/VFX, post production/DI (especially colour grading), studio display, mastering, distribution, and display, in both the studio and in consumer’s devices. We will briefly review the theory of HDR/WCG - in particular, psychophysics and visual appearance aspects, and how those aspects are represented in HDR/WCG video signals. We'll discuss implementation and deployment of HDR in cinema, VFX/CGI, and video.

20 h 15 - 21 h 00: Hugo Gaggioni (CTO, Sony Professional Solutions Americas)
High Dynamic Range Technical Considerations for Production/Distribution Applications

High Dynamic Range (HDR) video describes an emerging group of monitoring, video encoding, and distribution technologies designed to enable a new home viewing experience with a next generation of television displays capable of intensely bright highlights, and high levels of contrast and color saturation.
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HDR, whether in HD or with 4K and 8K UHD, will fundamentally change live and episodic TV production and storytelling.

In addition to tutorial aspects of HDR, this presentation will cover issues facing the content creator and broadcaster: International standardization, challenges facing the simultaneous production of 4K HDR and HD SDR programs, potential “glass to glass” workflows and the practical application of live HDR images.

Finally, a description will be given of the HDRC-4000 HDR production converter, capable of real-time conversion to various formats for broadcast, OTT, as well as input to the production ecosystem from other sources: conversions of OETF/EOTF, color space, HDR/SDR and resolution, including conventional HD content, S-Log3, HLG and ST.2084.

Presenter:

Charles Poynton

Independent contractor specializing in the physics, mathematics, engineering, and programming of digital colour (color!) imaging systems, including digital still cameras, digital video, HD/UD/4K/8K (HDTV/UHDTV), VFX/CGI, and D1 and digital cinema (D-cinema) systems. He’s involved in engineering wide colour gamut (WCG, or wide gamut color) and high dynamic range (HDR) systems. An expert in colors spaces such as DCI P3 RGB, Adobe RGB 1998, ACES AP0/AP1, and BT.2020. He does technology-forecasting, systems modeling, algorithm development, video signal processing architecture, colour characterization and calibration, image quality assessment, and expert witness work. It was about 20 years ago that he decided that HD should have 1080 image rows, and square pixels... http://poynton.ca/

Hugo Gaggioni:

Chief Technology Officer of Broadcast and Production Systems Division, Sony Electronics Inc. Mr. Hugo Gaggioni serves as Chief Technology Officer of Broadcast and Production Systems Division at Sony Electronics Inc. Mr. Gaggioni joined Sony in 1988. With research interests ranging from digital video and image processing and information theory to video/audio compression and multidimensional signal processing, Mr. Gaggioni has served as session-chairman of 13 international conferences in the areas of HDTV and bandwidth compression systems. He was a member of the Advanced Television Advisory group to the U.S. Federal Communications Commission (1987 to 1994). He is a Fellow of SMPTE and the recipient of the 2004 Leitch Gold Medal award for technology leadership. Mr. Gaggioni was chairman of the SMPTE technical groups on Digital Representation of the 1125/60 High Definition TV Standard (SMPTE 260M, 88-92) and Digital HDTV Serial Interfaces (SMPTE 292M, 93-96). He was also chairman for a SMPTE group on Editing of MPEG bit-streams for TV studio usage. Mr. Gaggioni represented Sony Corporation of America to the ANSI X3-L3 committee and the ISO/IEC MPEG coding group from 1988 to 1996. He has also given numerous presentations and tutorial courses on signal processing and advanced video technologies at international events sponsored by SMPTE, IEEE, and Eurasip organizations. He holds six patents and has authored 32 technical publications in the areas of video compression, digital filter banks and HDTV devices and systems. Mr. Gaggioni holds degrees in telecommunications, systems engineering, and electronic engineering from the University of Essex in Colchester, England; University of Pennsylvania, and Columbia University, respectively.

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