



IS&T

# REPORTER

"THE WINDOW ON IMAGING"

Vol. 28, No. 1 January - March 2013

## HIGHLIGHTED PAPERS FROM RECENT CONFERENCES

### Color and Imaging: CIC 20

Winner of the Cactus Award

#### Angular Variations of Reflectance and Fluorescence from Paper — The Influence of Fluorescent Whitening Agents and Fillers

Niklas Johansson and Mattias Andersson, Mid Sweden University (Sweden)

**Abstract:** It has earlier been shown that light reflected from the body of paper exhibit anisotropic behavior. On the other hand, fluorescence emission is often assumed to be distributed in a Lambertian manner. The angular behavior of light reflected and fluoresced from paper is examined using measurements from a spectral goniophotometer. The angular dependency of the radiance factors was measured for a range of excitation wavelengths. Moreover, the influence of fillers and fluorescent whitening agents (FWA) on the anisotropy was studied. The measurements show that the anisotropy of the total radiance factor of paper decreases when an increasing amount of FWA is added to the paper. The same effect was also observed when an increased amount of filler was added to the paper. In addition, it was shown that the presence of fillers reduce the effect of the FWA. The results show that in comparison to the anisotropy of the total radiance factor from the paper samples, the anisotropy of the fluorescence alone is negligible. Hence, for paper samples [continues top of page 2](#)

To view the full papers of these abstracts for no fee go to [www.imaging.org/ist/publications/reporter/index.cfm](http://www.imaging.org/ist/publications/reporter/index.cfm)

\* These papers were presented at CIC20, held November 12-16, 2012, in Los Angeles, CA.

### Technologies in Digital Photo Fulfillment: TDPF2013

#### Importance of Illumination Rendering Index in Image Capture and Printing

Ron Kubara, Noritsu Koki Works Company Ltd. (Canada)

**Abstract:** Traditionally, the color balance of illumination in Degrees Kelvin has been of significant importance due to color sensitivity of film. Today, digital cameras including camera phones have an automatic white balance setting that reduces the importance of illumination color balance over film cameras. However, with the relatively fast pace of change of fluorescent and now light emitting diode (LED) illumination including camera strobes, the quality of light measured by Rendering Index (Ra) may be of more importance than Color Balance (Kelvin). Combining low rendering index values of some artificial light sources with the large color gamuts of inkjet printers versus traditional silver halide printers, increases the effects of color inconsistency and metamerism. While there is no immanent solution, it is important for imaging professionals to be aware this growing concern.

#### Including Videos in Photo Books

Reiner Fageth, CEWE COLOR AG & Co. OHG (Germany)

**Abstract:** This paper describes how videos can be implemented into printed photo books. More than half of the consumers take videos with DSCs, the other half with camcorders, smartphones and other devices. Therefore consumers making photo books are a great target group to offer a service implementing videos. Using the CEWE PHOTOBOOK software a consumer can select scenes (frames) of the video and have it printed together with a QR code in the product. After receiving the product, the QR code can be scanned with any smartphone or tablet and the movie will be displayed on the mobile device. [continues bottom right of page 2](#)

To view the full papers of these abstracts for no fee go to [www.imaging.org/ist/publications/reporter/index.cfm](http://www.imaging.org/ist/publications/reporter/index.cfm)

\* These papers were presented at the International Symposium on Technologies in Digital Photo Fulfillment conference, held January 8-9, 2013, in Las Vegas, NV.

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containing FWA evenly distributed in the bulk, the fluorescence alone should not induce significant differences between color measuring instruments of different measurement geometries.

### Winner of the MERL Best Student Paper Award

## A Large-Scale Multi-Lingual Color Thesaurus

Albrecht Lindner<sup>1</sup>, Bryan Zhi Li<sup>1</sup>, Nicolas Bonnier<sup>2</sup>, and Sabine Süsstrunk<sup>1</sup>

<sup>1</sup>École Polytechnique Fédérale de Lausanne (Switzerland) and <sup>2</sup>Océ Print Logic Technologies (France)

**Abstract:** We present a color thesaurus with over 9000 color names in ten different languages. Instead of using conventional psychophysical experiments, we use a statistical framework that is based on search results from Google Image Search. For each color name we compute a significance distribution in CIELAB space whose maximum indicates the location of the color name in CIELAB. A first analysis discusses the quality of the estimations in the context of human language. Further, we conduct an advanced analysis supporting our choice to use a statistical method. Finally, we demonstrate that a color name mainly depends on the chromatic values and varies more along the lightness axis.

## CIC@20: Multispectral Imaging

Shoji Tominaga, Chiba University (Japan)

**Abstract:** A variety of multi-spectral imaging methods are discussed for acquiring spectral information from a scene. We first review conventional multispectral imaging approach. The conventional imaging systems are mostly constructed by multi-band imaging devices with different filtration mechanism at the sensor side under passive illumination. We show some imaging devices, estimation algorithms, and applications. Recently, active spectral imaging attracts much attention as promising technology. The active spectral imaging method has the possibility of recovering spectral reflectance information and estimating tristimulus values of object surface in high speed. We introduce a spectral imaging technology by synchronizing a programmable light source and a high-speed monochrome camera. Two effective applications to spectral reflectance recovery and tristimulus imager are described.

## Improved Video Compression using Perceptual Modeling

Mark Q. Shaw, Hewlett-Packard Company, and

Albert Parra and Jan P. Allebach, Purdue University (USA)

**Abstract:** In this paper we investigate a method for selectively modifying a video stream using a color contrast sensitivity model based on the human visual system. The model identifies regions of high variance with frame to frame differences that are visually imperceptible to a human observer with normal color

vision. The model is based on the CIELAB and the CIE  $\Delta E_{94}$  color difference formula, and takes advantage of the nature of frame-based progressive video coding.

The method was found to achieve up to 35% improvement in data compression without perceptible degradation of the video quality. As expected, the amount of compression improvement obtained is dependent on the type of video content being compressed.

## Webcam Based Display Calibration

Jean-Baptiste Thomas, University of Burgundy (France), and Jérémy

Gerhardt, Fraunhofer FIRST (Germany)

**Abstract:** We present an automatic method for measuring the tone response curve of display devices based on visual methods, where the eye is replaced by an end-user, uncalibrated camera, such as a webcam. Our approach compares a series of halftoned patches of known covering ratio with a continuous series of tone patches for each ratio. Both patches are shot by a camera that is used as a virtual eye to evaluate the luminance difference. By an iterative process, the continuous tone value is adjusted while compared with the perceived level of the halftoned patch. When the camera does not see any difference between the patches or a minimal difference, the luminance level of the continuous patch corresponds to the relative luminance of the halftoned patch covering ratio. We demonstrate that the method is as accurate as an equivalent visual method. The advantage of using a camera over the human eye is due to the limitation of observer variability while performing visual tasks. ▲

TDPF papers continued from page 1

## KODAK PROFESSIONAL ENDURA Premier Paper—A New Silver Halide Paper with Improved Color Gamut for both Portrait Social and Commercial Application

Patrick Webber, Eastman Kodak Company (USA)

**Abstract:** In Eastman Kodak Company's ongoing efforts to further improve the output quality of its silver halide papers Kodak has introduced KODAK PROFESSIONAL ENDURA PREMIER Paper. This paper was developed with new emulsion and dispersion technologies that further enhances color gamut while maintaining critical image quality attributes such as flesh tone and tone scale reproduction. These improvements allow KODAK PROFESSIONAL ENDURA PREMIER Paper to be used in Portrait Social and Commercial applications. This technical paper will review the technologies, as well as the customer benefits provided by this new silver halide paper. ▲

# CIC Turns 20 in LA

By Clément Fredembach (CiSRA), CIC20 Program Co-chair

The Color and Imaging Conference (CIC) turned 20 at the Doubletree Hilton in downtown Los Angeles, California. The conference, held November 12 to 16, 2012 was attended by 166 technical delegates from 16 countries and was chaired by Stephen Westland (University of Leeds) and Xuemei Zhang (Apple Inc.).

## Special Events

Throughout the week, special events were organized to celebrate CICs 20th year, as well as to highlight the conference location and proximity to the center of the motion imaging industry in the US. On Tuesday, the traditional welcome reception morphed into an evening of games and trivia contests related to color and CIC history, including color bingo, multiple-choice team trivia, and individual color “Jeopardy.” Winners took home Wiley series books, copies of Nathan Moroney’s *The Color Thesaurus*, and cool color-changing computer mice.

The conference reception was held at the Academy of Motion Picture Arts and Sciences’ Samuel Goldwyn Theater. The fantastic evening, hosted by Rod Bogard (Pixar) and Joshua Pines (Technicolor), featured a delicious reception followed by a visual presentation about the evolution of color in the movies. Bogard and Pines enhanced their talk with cinematic clips highlighting the transition from hand-colored slides to full digital workflow and



Photos: Diana Gonzalez.

CIC20 Technical Program Co-chair Jennifer Gille and Martin Hammer before the Academy of Motion Picture Arts and Sciences’ hosted presentation on color in the movies.

projection. Continuing on the movie theme, the Thursday evening talk, “From Then Till Now,” presented by Phil Tippett (Phil Tippett Studio) took us from early animation to present day CGI.

Another special feature of this conference was the inclusion of five invited talks that provided a retrospective view of the past 20 years of CIC. Entitled CIC@20, each talk focused on a different dimension of color. John McCann (McCann Imaging) presented “The Continuing Tale of Two Paradigms” about the state of color during the two decades of CIC; Shoji Tominaga (Chiba University) discussed the past 20 years in multispectral imaging research; and in “20 Years of Colour Appearance Research at CIC,” Ronnie Luo (Zhejiang University and Leeds University) discussed past and present CIE efforts to create standard color appearance models and difference metrics. Joyce Farrell (Stanford) provided a moving tribute in “A Life in Color: Louis Silverstein’s Contributions to Color Displays.” and Jan Morovic (HP Europe) presented “Predictability and Beyond: 20 Years of Color Printing at CIC.”

## Best Paper Awards

Each year, CIC presents two best paper awards, determined by attendees at the conference. This year, the fifth MERL Best

CIC 20	
Attendees*:	180
Oral Papers:	35
Interactive Papers:	25
Short Courses:	14
Exhibitors:	1
Dates:	Nov. 12-16, 2012,
Location:	Los Angeles, California
*includes Short Course only and guests	

Student Paper Award was given to Albrecht Linder (EPFL) for “A Large-scale Multi-lingual Thesaurus” (co-authors Bryan Li, Nicolas Bonnier, and Sabine Süstrunk). Linder’s work includes a functional online app to obtain color coordinates of a color name, translation, and variation of the color coordinates depending on the language. The Cactus Award for Best Interactive Paper was presented to Niklas Johannsson and Mattias Andersson for “Angular Variations of Reflectance and Fluorescence from Paper—The Influence of Fluorescent Whitening Agents and Fillers.”

## Keynotes

Three high-quality keynotes were given during the course of the conference. Paul Debevec (University of South Carolina) talked about creating photoreal actors for the movie industry by designing illuminating spheres that enable the capture and identification of light and reflectance. Mark Fairchild (RIT) [continues on page 5](#)



Photo: Diana Gonzalez.

Vien Cheung, Caterina Ripamonti, and Stephen Westland (University of Leeds) signed their recently released “Computational Colour Science Using MATLAB,” an IS&T/Wiley Series book, available from IS&T.



Photo: Diana Gonzalez.

CIC20 Short Course Co-chair Max Derhak and Mahnaz Mohammadi talk with Yi-Fan Chou about his presentation during the Interactive Paper Session.

# Fourth International Symposium on Digital Photo Fulfillment Joins DIMA in Las Vegas

By TDPF 2013 Symposium Chair Joe LaBarca (Pixel Preservation International) and Program Committee Member Stuart Gordon (Eastman Kodak Co.)

The Fourth International Symposium on Technologies for Digital Photo Fulfillment (TDPF) was held in Las Vegas, January 8-9, 2013. The conference, held as a track within DIMA, featured 11 excellent papers, a panel discussion, and company profiles. This year, TDPF and DIMA attendees were joined by colleagues from PSPA (Professional School Photographers Association) and SPAA (Sports Photographers Association of America), making for a vibrant exchange of information.



Photo: Henry Wilhelm.

The panel on Advancing Hard Copy Output for Preservation was moderated by Joe LaBarca and featured panelists (left to right) Ina Hilker (Felix-Schoeller, Germany), Brigitte Peleman-Vanteigham (Peleman Industries, USA), Anthony Pieters (FUJIFILM Europe, Germany), Chris Van Zandt (Eastman Kodak Company, USA), and Henry Wilhelm (Wilhelm Imaging Research, Inc., USA).

### TDPF 2013

Attendees: varied by session

Oral Papers: 11

Dates: Jan. 8-9, 2012

Location: Las Vegas, NV

in capturing digital images and novel ways to include videos in photo books. All the attendees and presenters are looking forward to the next TDPF. ▲



Photo: Henry Wilhelm.

Program Chair Dan Burge (Image Permanence Institute) and Program Committee member Stuart Gordon (Eastman Kodak Co.) look on as General Chair Joe LaBarca (Pixel Preservation International) opens TDPF 2013.

The well-attended and well-received conference focused on hard copy output. Udi Chatow (HP Labs, USA) kicked off the meeting with a focal talk titled “Mobile and Web2Print Solutions from HP Labs.”



Photo: Henry Wilhelm.

Anthony Pieters’ (FUJIFILM Europe, Germany) talk “Silver Halide Paper Still Strong and Alive in the Digital Print World” garnered much interest.

His paper, along with others from Eastman Kodak Company and FUJIFILM Europe, emphasized hard copy output as a good means of digital file preservation. A paper on Endura Premier showed Kodak’s continued involvement in and commitment to silver halide output. A lively discussion panel with five industry leaders took place on getting consumers to recognize the extra value of hard copy output for long term image preservation.

Photobooks were once again a popular topic with several papers devoted to this subject, reflecting the growing importance of this product in the marketplace. Other topics of interest included the importance of lighting color rendering index

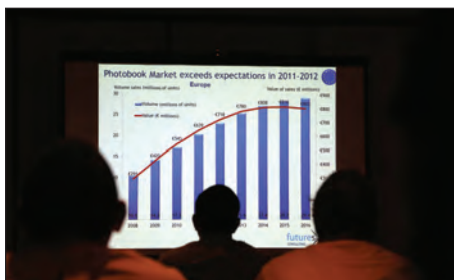


Photo: Henry Wilhelm.

Information, such as European photobook sales and projections were shared by TDPF speakers.

## IS&T REPORTER

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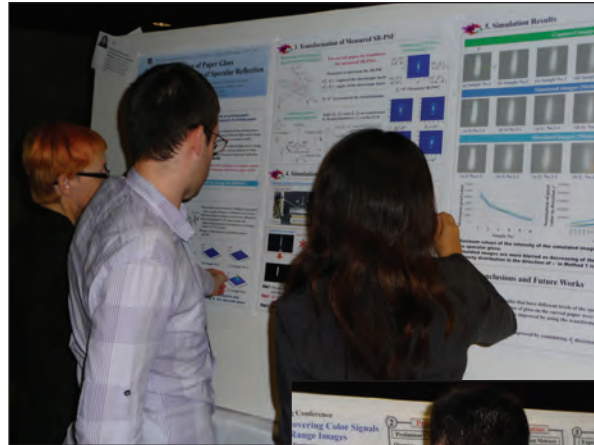
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continues from page 3 explained the want and wealth of color appearance models' evolution during the past 20 years on Thursday, then deftly presented Robert Hunt's keynote "The Challenge of our Unknown Unknowns" on Friday. Hunt was unable to attend CIC20, but graciously allowed the fourth and final, keynote in his "known/unknown" series to be presented by Fairchild.

### Short Courses and Technical Sessions

As usual, the two-day class on Color Science and Imaging, this year given by Geoff Woolfe (CiSRA) started the CIC week, which included 13 other short courses covering a wide range of topics such as LED Lighting Characterization (Wendy Davis, University of Sydney), Introduction to Motion Picture Color Pipelines (Jeremy Selan, Sony Pictures, and Stefan Luka, Walt Disney Feature Animation), Color in High Dynamic Range Imaging (Greg Ward, Dolby Laboratories), and the Academy Color Encoding System (Nicolas Bonnier, CiSRA, and Alex Forsythe, Academy of Motion Picture Arts and Sciences) among others.

Oral presentations were organized into 10 sessions: Motion Imaging (chaired by Joshua Pines, Technicolor, and Joseph Goldstone, ARRI); Communicating Color (chaired by Geoff Woolfe, CiSRA); Illuminant Estimation (chaired by Michal



Mackiewicz, University of East Anglia); Virtual Colour (chaired by Brian Funt, SFU); Medical Color (chaired by Clément Fredembach, CiSRA); Colorimetry (chaired by Gabriel Marcu, Apple Inc.), Color Algorithms (chaired by Mike Brill, Datacolor); Color Imaging (chaired by Sabine Susstrunk, EPFL); Color Perception (chaired by Caterina Ripamonti, UCL); and Color Printing (chaired by Jan Allebach, Purdue).

In addition, 25 papers were presented during two spotlight sessions, where authors are given two minutes to introduce their work to the entire audience and then made individually-tailored presentations during the interactive session, which was

The Interactive Paper Session—with its highly-coveted Cactus Award—remains a highlight of the Color and Imaging Conferences.

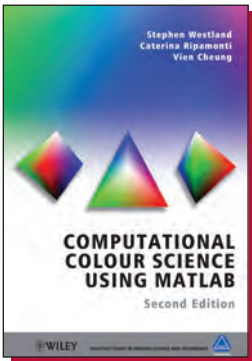


Photos: Diana Gonzalez.

chaired by Iris Zhao (Apple Inc.) and Vien Cheung (University of Leeds). The interactive papers covered a wide spectrum of topics in a format enjoyed by attendees and presenters alike.

All papers from the conference are available from IS&T as either a hardcopy proceeding book with CD or as downloadable PDFs. The next Color and Imaging Conference (CIC21) will be held November 4-8, 2013, in Albuquerque, New Mexico. General Chair Clément Fredembach (CiSRA) looks forward to welcoming and meeting you there. ▲

**No matter how you spell it, we have the **COLOR** books you need.**



**Computational Colour Science Using Matlab**  
Stephen Westland, Caterina Ripamonti, and Vien Cheung;  
published Aug. 2012; 224 pp;  
ISBN 978-0-470-66569-5  
list price: \$120; Amazon.com price \$113 (on 3-25-13)

Choose any one of these books for **\$99**  
available at [www.imaging.org](http://www.imaging.org)



**The Art and Science of HDR Imaging**  
John J. McCann & Alessandro Rizzi;  
published Nov. 2011; ISBN 978-0-470-66622-7; List Price: \$135;  
Amazon.com price \$114 (on 3-25-13)



**COLOR IN COMPUTER VISION**  
Fundamentals and Applications  
Theo Gevers • Arjan Gijsenij • Joost van de Weijer • Jan-Mark Geusebroek  
published Sept. 2012; ISBN: 978-0-470-89084-4; list price: \$110; Amazon.com price \$88 (on 3-25-13)



**imaging.org**

## Standards Update

by David Q. McDowell, Editor

This issue of *Standards Update* is focused primarily on ISO TC130, Graphic technology, both because that is where I spend most of my standards time and because a lot is happening in TC130 right now.

### TC130: Change in Secretariat and Current Organizational Structure

A little over a year ago, the German National Standards body (DIN) announced that they would like to relinquish the role of Secretariat of TC130. They indicated that this was in part because of reduced financial support from the German printing industry. Several discussions were held among experts to TC130 from various national bodies but no concrete plan emerged. The Chinese National Standards body, SAC, announced their willingness to take on the Secretariat role and requested the approval of the ISO Technical Management Board. This was granted and currently a transition is taking place from DIN to SAC.

Simultaneous with these changes Karin Winkelmann announced her retirement from DIN at the end of 2012. Winkelmann has been the secretary of TC130 (and those WG for which Germany was responsible) for the last six years and has provided outstanding support to TC130. She will be missed.

Within TC130 it has been the practice for various National Bodies to take on the secretary roles for each Working Group (WG). The current WG secretaries are:

- WG1, Terminology, UK
- WG 2, Prepress data exchange, US
- WG 3, Process control and related metrology, Germany
- WG 4, Media and materials, Germany
- WG 5, Ergonomics — Safety, US
- WG 7, Colour management (JWG with ICC), US

- JWG 8, Revision of ISO 13655 (JWG with TC42), Germany
- WG 9, ISO 12640-5 (JWG with TC42), US
- WG 10, Management of security printing processes (JWG with TC 247) the Netherlands
- WG 11, Environmental impact of graphics technology, US
- WG 12, Postpress, China
- WG 13, Printing conformity assessment requirements, Brazil
- WG 14, Print quality measurement methods (JWG with JTC 1/SC 28), the Netherlands

### 2012 Plenary Meeting

TC130 held its 26th Plenary Meeting\* in Chicago, IL on October 6, 2012.

Some of the key decisions (resolutions) that set the stage for future work that were approved at the Chicago Plenary meeting included the following:

- TC130 resolves to initiate work at stage 0 to develop an International Standard to define a file format and encoding mechanism for tone response curve adjustment data under the following working title: Tone response curve adjustment.
- ISO/TC 130 resolves to create ISO/TC 130/JWG 14 (Joint with ISO/IEC JTC 1/SC 28 under the lead of ISO/TC 130) with the title “Print quality measurement methods.”
- ISO/TC130 resolves to contact IEC/TC100 to request a Mode 4 Collaborative Relation with IEC/TC100/TA13 to cooperate in the development of work relating to calculating the Carbon Footprint of E-books.
- TC130 resolves to initiate work, at Stage 0, to create a technical specification (TS) under the following title: Graphic Technology — Criteria and requirements for package printing supply chain communication.
- ISO/TC130 resolves to create a Task Force named “Workflow standards roadmap” under ISO/TC 130 to pre-

pare a Technical Report to describe the relationship among the TC130 standards and to show how the standards function and interrelate to enable business and manufacturing processes within the graphic arts industry. Simultaneously the TF will also prepare an internal ISO/TC130 document to identify standards or parts of standards that are missing or require improvement.

It was announced that an invitation had been received from China to hold the spring 2013 Working Group meetings in Shenzhen, China. These meetings have been scheduled for the week of May 18.

### Some Technical Work of Interest

Several activities are underway that have impact beyond TC130, I have attempted to summarize them below but also welcome inquiries concerning these activities which I will direct to the key individuals involved. In no particular order these are.

#### *Black Point Compensation (BPC)*

Black point compensation (BPC) is a technique used to address colour conversion problems caused by differences between the darkest level of black achievable on one device and the darkest level of black achievable on another. This procedure was first implemented in Adobe Photoshop in the late 1990's. The International Color Consortium (ICC) and ISO Technical Committee 130 (Graphic technology) have created this specification of BPC (ISO 18619) to allow black point compensation to be used in a consistent manner across applications.

The purpose of BPC is to adjust a colour transform between source and destination ICC profiles, so that it retains shadow details and utilizes available black levels. The procedure depends only on the rendering intent(s) and the source and destination ICC profiles, not on any points in a particular image. Therefore, the colour transform using specific source and destination ICC profiles can be computed once, and then efficiently applied to

\*A plenary meeting of an ISO Standards Committee is the forum for formal decisions in the form of “resolutions” that provide the guidance for the actions and work of the committee. The only other decision mechanism available to a Technical Committee is written ballots. These can be ballots to approve a document at various stages of development, for example a CD ballot, or letter ballots for matters unrelated to the approval of a document.

many images which use the same ICC profile colour transform pair.

The draft of this document is in the final stages of editing and approval within the ICC and will be introduced into ISO through WG7 as soon as ICC final agreement is reached. The current goal for this is March/April 2013.

### *ISO 18621, Graphic technology — “Print quality measurement methods”*

As noted earlier, TC 130 has created JWG 14 with ISO/IEC JTC1/SC28/WG4. The purpose of this JWG will be to create ISO 18621 which has the tentative title *Graphic Technology — Print quality measurement methods*.

The need for this standard grew out of work initially undertaken to define print quality of digital printing devices as part of the ISO 15311 (*Graphic Technology — Requirements for printed matter utilizing digital printing technologies for the commercial and industrial production*) series of standards which are in development at Stage 0.

During the discussions of ISO 15311 it was realized that there are many physical attributes of printed images that can/must be measured as part of any quality evaluation. Some of the measurement methods for specific attributes are documented by other standards groups and are suitable for use directly. Others require modification or restriction for use with graphic arts images. Still others either are not formally documented or have a multiplicity of competing measurement/evaluation procedures that need to be consolidated for graphic arts use.

The initial concept is that ISO 18621 will be a multi-part standard where each part will be the documentation of the test procedure for a specific attribute. These may be complete stand-alone test procedures or restrictions/enhancements of referenced test procedures. It is also anticipated that Part 1 will include appropriate references to test procedures that are directly appropriate for use.

This approach will allow ISO 18621 to be quickly created based on currently known/agreed upon test and to continue

to grow as new tests are identified and/or defined.

As JTC 1/SC 28/WG 4 (Office equipment/Image quality assessment) is already looking at test procedures for many of the same attributes in the office equipment area they seemed to be a logical partner for development of this standard. The goal is to include test procedures and measurement methods that can be referenced from standards developed by either group and provide a common reference for the measurement of print quality attributes.

### *XMP Metadata*

ISO 16684-1, *Graphic technology — Extensible metadata platform (XMP) specification — Part 1: Data model, serialization and core properties* was published in early 2012. As a follow-on to this standard, work has focused on the formal or mechanical validation of XMP. RELAX NG, defined in ISO 19757-2, has been chosen as the schema language. It is both powerful and easy to use.

ISO 16684-2, *Graphic technology — Extensible metadata platform (XMP) — Part 2: Validation using RELAX NG*, defines policies for validation engines to follow so that schemas can be shared and so that the schemas do not require customization for each validation engine. It also defines policies for schemas to follow in order to operate with a conforming validation engine, and to make the schemas robust and modular. ISO 16684-2 is currently in CD ballot.

### *Colorimetry and densitometry*

ISO 13655 (Colorimetric measurement), ISO 3664 (Viewing conditions, and ISO 5 (densitometry) were all updated in 2009. They included a common definition of the illumination conditions referred to as M0, M1, M2 and M3. While the definition of these conditions seemed obvious to the standards experts, they have been confusing to many users.

I recently saw an excellent explanation of the differences at [www.konicaminolta.eu/en/measuring-instruments/learning-centre/colour-measurement/colour/iso13655-demystified.html](http://www.konicaminolta.eu/en/measuring-instruments/learning-centre/colour-measurement/colour/iso13655-demystified.html).

## **Other News from ISO**

### *Long-term authenticity of electronic signatures*

A new ISO standard, ISO 14533-1:2012, *Processes, data elements and documents in commerce, industry and administration — Long term signature profiles*, has been published which will help business and governments guarantee the long-term authenticity of electronic signatures, increasingly used in e-commerce and e-government.

The requirements of ISO 14533 will also ensure the interoperability of electronic signatures when the documents they authenticate are transferred and processed through different information technology systems.

The new standard is in two parts:

- Part 1: Long term signature profiles for CMS Advanced Electronic Signatures (CAAdES)
- Part 2: Long term signature profiles for XML Advanced Electronic Signatures (XAAdES)

Electronic signatures facilitate the use of electronic contracts and records in commerce and government by ensuring their validity. Up to now, the problem has been that the legal or statutory preservation period required of electronically signed documents may be longer than the practical digital life of the document. ISO 14533 will help solve this problem by providing a framework for the development of systems and/or services which can guarantee the authenticity of electronic documents for a longer period of time than is currently supported by available technology.

These standards were developed by ISO/TC 154, Processes, data elements and documents in commerce, industry and administration.

### *ISO Focus+*

The ISO monthly magazine, ISO Focus+, draws attention to the vital role International Standards play in the global economy. The magazine is geared to an international readership of standards developers, industry and government regulators. Each month, it focuses [continues on page 8](#)

## UPCOMING IS&T EVENTS

April 2-5, 2013; Washington, DC

### Archiving 2013

General Chair: Peter Burns

September 29-October 3, 2013; Seattle, Washington

### NIP29/Digital Fabrication 2013

General Chairs: Steve Simske and Werner Zapka

November 4-8, 2013; Albuquerque, New Mexico

### 21st Color and Imaging Conference (CIC21)

General Chair: Clément Fredembach

February 2 - 6, 2014; San Francisco, California

### Electronic Imaging 2014

Symposium Chairs: Sergio Goma and Sheila Hemami

To learn about all upcoming IS&T meetings, go to [www.imaging.org/ist/Conferences/](http://www.imaging.org/ist/Conferences/).  
For a complete list of imaging-related meetings, go to [www.imaging.org/ist/conferences/events.cfm](http://www.imaging.org/ist/conferences/events.cfm)

continued from page 7 on a theme such as risk or the environment, to highlight the achievements of standards in the field as well as providing an update on some of the newest International Standards.

ISO Focus+ is available free at [www.iso.org/iso/home/news\\_index/iso\\_magazines/iso\\_magazines](http://www.iso.org/iso/home/news_index/iso_magazines/iso_magazines)

*For questions about the activities of TC 130, for suggestions for (or input to) future updates, or standards questions in general, please contact the editor at [mcdowell@npes.org](mailto:mcdowell@npes.org).*

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