



Inter-Society Color Council News

Issue 436

November/December 2008

ISCC Announces Two 2009 Meetings

The first of the two meetings is the 2009 Inter-Society Color Council's Annual Meeting, which will be held in Rochester, NY on Sunday June 7. The second is a Special Topics Conference on Lighting in Art, Commercial and Retail Spaces, which will be

held jointly with CORM on October 13-14, in Gaithersburg MD.

The 2009 Annual Meeting will be held at the Rochester Institute of Technology (RIT) followed by a special symposium hosted by the Munsell Color Science Laboratory (MCSL) celebrating their 25th anniversary on June 8.

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Rochester, NY from Ford Street Bridge

Photo Credit: VisitRochester.com

The Theme of the ISCC Annual Meeting is "Color Order Systems." The meeting will include presentations in each of the ISCC interest groups, a student poster session, and an education session. A call for papers is included in this newsletter on page 7.

The joint ISCC/CORM Special Topics Conference will be held at the National Institute of Standards. The conference may include sessions on effects of lighting on color rendering, measurement of sources *in situ*, and psychophysical effects of lighting. More information on this meeting is on page 6 of this newsletter.



The ISCC Newsletter Editors wish
you a Happy Holiday Season!



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**Nickerson Service Award
Nominations**

The Inter-Society Color Council's Nickerson Service Award was established in 1980 to recognize outstanding long-term contributions toward the advancement of the Council and its aims and purposes.

**Nickerson Service Award**

The contributions may be in the form of organizational, clerical, technical, or other services that benefit the Council and its members. Candidates for the award must be members of the Council and must have been active in the affairs of the Council. Recent past recipients include Ralph Stanziola – 2004, Gultekin Celikiz – 2005, Mary McKnight – 2006 and Dave Wyble - 2007.

You are invited to nominate a person for the 2009 Nickerson Service Award. Please contact the chair of the Nickerson Service Award Committee, Ellen Carter, 21 Castle Drive, Pennsville, NJ 08070 or by email at Ellen.Carter@alum.rpi.edu. Nominations must be received before January 15, 2009.

RIT MCSL Offers Short Course

R•I•T Munsell Color Science Laboratory is offering an annual industrial short course, "Essentials of Color Science," June 2-5, 2009. This four-day course is made up of a series of 16 distinct sessions delivered by leading experts in the topical areas. The lectures are designed to form a coherent course that introduces the fundamental concepts of color science, describes various applications, and introduces cutting-edge research areas in color science. The descriptions included are concisely summarized. Please see the website for full descriptions, www.mcsl.rit.edu/outreach/courses.php.

Please learn more about the qualifications of the faculty and contact them with questions at www.cis.rit.edu/mcsl/people/staff.php. For a brochure, please contact Val: val@cis.rit.edu.

HUE ANGLES

(Send contributions to Michael H. Brill, mbrill@datacolor.com)

A logo shown at the last ISCC meeting evoked a memory from graduate school....

Green Technology and Yellow Afterimages

At the recent ISCC meeting in Baltimore, David Oakey gave a talk on “Respect for the future through the use of color.” One of his visual aids was the new British Petroleum logo (see below, or search “BP logo” and click on “Image Results”), which spoke of solar power and green energy through its sun-like white center with yellow-bordered rays, surrounded by green leaf-like structures. Staring at the pattern on a large screen, and then at a piece of white paper, I saw a quite distinctive afterimage: bright yellow in the center of the pattern, surrounded by nothing very distinctive. I was surprised that the afterimage was brighter than the paper (the white center should have evoked a dark afterimage), and also by the yellow color (as opposed to blue, induced by the yellow border in the logo). For a smaller image of the logo, I saw something more like what I had expected: a faintly yellowish center with a diffuse purple surround. This was reminiscent



of two effects I found [1] in exploratory efforts as a graduate student under the direction of Jerome Y. Lettvin (MIT).

- (1) Extending Abney’s finding [2] that all colors seem to shift toward yellow when mixed with white light, Lettvin [3] proposed that even yellows should get yellower: i.e., a yellow light should become more saturated when mixed with white. Accordingly, I projected sharply focused white spot on the diffuse yellow background produced by shining a white light through a Wratten 15 filter. The apparatus consisted of two quarter-inch light pipes, two American Optical fiber-optic illuminators, two rotary neutral-density filter wedge assemblies, and a focusing lens and diaphragm for the white spot. The white spot indeed seemed a more saturated yellow than the surround when it was not too bright.
- (2) When a diffuse, barely discernible blue light (e.g., through a Wratten 98 filter) is shone (e.g., by a projector with no lens) on a white screen in a generally lit room, the shadow cast by an interposed object appears startlingly yellow, and the edge of the shadow appears diffuse no matter how sharp it looked using another light. The shadow can look brighter than the rest of the wall (despite reflecting less light). Furthermore, if the object casting the shadow is a pendulum in motion, the shadow lags the pendulum at the ends of its trajectory (where the acceleration is greatest), in a manner reminiscent of the Pulfrich effect (whereby a pendulum seen binocularly with one eye filter-covered appears to move in 3 dimensions due to the receptor-response lag in the filtered eye). I called the yellow-shadow version a “monocular Pulfrich effect.”

How can all this be explained? One clue is to realize that blue contributes very little to the luminance channel in vision, hence bright yellow has almost the same luminance as white (which matches yellow + blue). Since the luminance channel has much higher resolution both in space and time, it is clear that a border between yellow and white will look blurrier than a border between colors of appre-

Continued on page 4

ciably different luminance, and will also evoke a time-lagged visual response. That explains the blurriness and time lag of the yellow shadow edge in the “monocular Pulfrich effect.” Another clue is that the blue receptors also operate in low resolution both in space and time. That is another clue, which together with the first can help explain the BP-logo afterimage and yellow-spot effect. One must also remember that, when looking at the primary pattern, the eye is always moving in a jittering motion to refresh the image. Anyone care to offer an explanation for the BP-logo afterimage based on these clues?

Michael H. Brill
Datacolor

[1] M. H. Brill, *Color Vision: An Evolutionary Approach*, Ph.D. Dissertation, Syracuse University, 1976, pp. 57-58.

[2] Abney, W. de W. *Researches in Normal and Defective Color vision and the Trichromatic Theory*, London: Longman, Green and Co., 1913.

[3] J. Y. Lettvin, *The Colors of Colored Things*, *Quarterly Progress Reports of the MIT Research Laboratory of Electronics* **87** (1967), 193-225.



Puzzle Feature

The ISCC newsletter editors have established a new feature -- puzzles with a color them. Please contribute a puzzle; all types are welcome. Send it to Cynthia Sturke at isccoffice@cs.com.

Puzzle Feature: Achromatic Cryptoquote

Each letter stands for another. Under the quote is the author’s name and work.

NCO NEPIM RP MNRCQ PUIMI'Q N MNRCTFL NCO NHH FE PUI
 YFHFMQ NMI THNYZ. RP'Q CFP PUNP PUI YFHFMQ NMIC'P PUIMI.
 RP'Q DVQP RBNSRCNPRFC PUIX HNYZ...

GNVH QRBFC, "BX HRPPI PFLC"

Submitted by Mike Brill

Solution for Sept/Oct Puzzle

1a	Complementary	6a	Tone
1d	Chromaticity	6d	Tint
2d	Primary	7d	Hue
3d	Value	8a	CMYK
4d	Saturation	9a	Sheen
5a	Shade	9d	RGB

Member News

Datacolor and Real Time Technology (RTT) Collaborate to Improve Color Efficiency in Product Design

On November 20, 2008, Datacolor, a Sustaining Member of the ISCC, announced a collaborative agreement with Realtime Technology (RTT) to help improve the efficiency of color development processes. Combining RTT's highly advanced 3-D visualization software — used by industrial designers in the automotive, aviation and consumer goods markets — with Datacolor's unique true-color-on-screen representation technology, colors developed in a virtual environment can consistently and accurately be translated to reality in the form of animated film sequences, print ads, packaging, and other tangible means. Additionally, the accurate conversion of designer's inspiration into precise color targets for the supply chain improves the efficiency and accuracy within the color development and manufacturing process.

Based on Datacolor's ENVISION™ technology, and RTT's high-end visualization software RTT DeltaGen, the combined development efforts will lead to several new products. Datacolor ENVISION, a precise, on-screen color simulation software that provides true-color-on-screen representation of samples, combined with the detailed and realistic image and texture simulation of RTT DeltaGen, will produce life-like product simulations as a substitute for physical samples.

Eliminating the need for physical color samples while streamlining color-development processes will save time and money through efficiencies in the color management process. In particular, designers will be able to share their work accurately, with each other and with suppliers, from anywhere in the world. This will eliminate a major roadblock in the current color-development process.

While the output of designs created by RTT DeltaGen will match the color renditions intended by the designer, viewing the color palette on a monitor requires the recipient to properly calibrate the monitor for accurate viewing. Therefore, monitor-calibration tools such as Datacolor's SPYDER3™

will be integral to the joint venture's product roadmap.

Some background on RTT: Realtime Technology (RTT) AG is a worldwide leading supplier of 3D real-time visualization technologies and services for industrial applications in the automotive, aerospace and consumer goods industries as well as in industrial design. The company supports its customers not only during the design and developing phases with regard to the virtual display of different product concepts (Virtual Prototyping), but also during the marketing and sales stages in presenting the products in all variants and with all additional options in the showroom, on the Internet, at fairs or at dealerships (Virtual Marketing).

For more about Datacolor, please see www.datacolor.com and also ISCC News # 415 (May-June 2005).

Day and Night Dominate the 2008 IES Annual Conference General Sessions

More than 300 attended the 2008 Annual Conference of the Illuminating Engineering Society of North America (IES) in Savannah in November. Aptly named, "Day & Night—An Exploration of Light: Moving Ideas Forward," the general sessions covered two topics of growing importance to the lighting community: daylighting and the dark sky.

Jim West, Dean, College of Architecture, at Mississippi State University, noted that all members of the project team have an ownership stake in daylighting. The importance of good building and lighting design is emphasized by the fact that we spend 90 percent of our time indoors. Dr. Joan Roberts, Department Chair of Natural Science at Fordham University spoke during the second session on how light and darkness are both beneficial to human physiology. The third General Session addressed concerns about the dark sky while the last session offered a rare, first-hand glimpse into the national legislative process with regard to the Energy Independence and Security Act of 2007. For more information about IES conferences see www.ies.org.



First Announcement: Joint Meeting of ISCC/CORM



“Lighting in Art, Commercial,
and Retail Spaces”

Dates: Oct. 13-14, 2009

NIST Green Auditorium, Gaithersburg MD

The Council for Optical Radiation Measurements and the Inter-Society Color Council would like to announce a joint meeting entitled “Lighting in Art, Commercial and Retail Spaces” to be held on October 13-14, 2009 at the Green Auditorium at NIST. The conference will be applications-based and looks to draw a field of experts from the fashion, commercial, and conservation (museum lighting) fields as well as general experts in the field of lighting.

Tentative sessions on the following topics will be:

- Session I: Effects of Lighting on Color Rendering in Art and Commercial Spaces. Chair-TBA
- Session II: Measurement of sources *in situ*. Science and Metrology of measurement of Ambient Light in the Field. Chair, Massy Anaya, Boeing
- Session III: Psychophysical Effects of Lighting. Chair: TBA

A call for papers will be issued in the coming months. For now please save the date for this engaging and useful conference next fall in Gaithersburg.

The conference will also include tours of the NIST facility. Following this meeting will be meetings of CIE-USA and CIE-Canada, in the same venue. CIE/USA and CIE Canada will hold their Technical conference (Thursday Oct 15) and administrative committees (Friday Oct 16).

Technical Contacts for the Joint ISCC-CORM Meeting are:

Dr. David Wyble- Munsell Color Science Laboratory, Rochester Institute of Technology
Dr. Art Springsteen- Avian Technologies LLC

Check ISCC or CORM web sites for updates and more details.

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Announcement and Call for Papers Inter-Society Color Council 2009 Annual Meeting and



Munsell Color Science Laboratory 25th Anniversary Symposium June 7-8 2009, Rochester NY



The Inter-Society Color Council will hold its 2009 Annual Meeting in Rochester NY at the Rochester Institute of Technology (RIT) on Sunday, June 7, followed by a special symposium hosted by the Munsell Color Science Laboratory (MCSL) celebrating their 25th anniversary on June 8.

RIT and the Rochester area bring a rich history of imaging, photography, and printing. RIT is well positioned to appeal to all three ISCC Interest Groups—with degree programs in graphics arts, design, printing, color and imaging sciences, and more, RIT represents a unique opportunity to address the main strength of ISCC – its breadth across the full gamut of the color field.

Theme: “Color Order Systems”

The theme for this meeting is *Color Order Systems*, by which we intend to connect closely to the MCSL 25th Anniversary Symposium. Color order systems have an important place in most applications of color. The answers to such questions as the acceptability of a difference between desired and actual color can be highly related to the color-order system that captures the needs of the intended application.

Presentations will include representation from Interest Group I: *Basic and Applied Research*, Interest Group II: *Industrial Applications of Color*, and Interest Group III: *Art, Design, and Psychology*.

Following the Sunday sessions, a student poster session will highlight the efforts of students from RIT and other universities. An afternoon hors d'oeuvres reception will accompany the poster discussion and provide a great opportunity to mix with the next generation or with the previous one.

Bonus: Education Session

On Sunday an education session will feature, in tutorial fashion, various aspects of the application of color order systems to the diverse interests of ISCC attendees. This session will include experts from each interest group, spanning the breadth of ISCC and helping to conceptually “connect the dots” between the color applications in research, industry, and art and design.

MCSL 25th Anniversary Symposium

Technical sessions for this one day symposium will consist of invited lectures by experts from around the world. They will discuss color science as it applies to the history and research of MCSL over the last quarter century.

These Monday sessions will be followed by an evening reception and tours of the Munsell Color Science Laboratory facilities.

Submission Details

Those interested in presenting oral or poster papers should submit a three-page (maximum) abstract by March 1, 2009. A template is available from iscc.org/meetings/AM2009. Send abstracts to any of the technical committee members:

David Wyble, wyble@cis.rit.edu

Michael Brill, MBrill@datacolor.com

Jaime Gomez, jaimeagomez@comcast.net

James Roberts, jim.roberts@altanachemie.com

Karen Braun, Karen.Braun@xerox.com

Accommodations and other arrangements are being made now. As more information becomes available, it will be posted to www.iscc.org. If you have any questions or concerns, or if you would like to help, please contact David Wyble, General Chair, at 585-475-7310 or wyble@cis.rit.edu.

COLOR RESEARCH AND APPLICATION

In This Issue, December 2008

This special issue of Color Research and Application is devoted to Gjøvik Color Imaging Symposium 2007, which took place in Gjøvik, Norway in June 2007, see www.colorlab.no/events/gcis07. It was the fourth time that the Norwegian Color Research Laboratory at Gjøvik University College organized such an event, bringing together researchers and practitioners working within the interdisciplinary field of color imaging. Note that the fifth Gjøvik Color Imaging Symposium will be organized on June 15th, 2009, in conjunction with the 16th Scandinavian Conference on Image Analysis (SCIA 2009), and the 11th International Symposium on Multispectral Colour Science (MCS'09), see www.scia2009.org/.

The two-day symposium included keynotes and invited lectures, submitted papers and student presentations, as well as tutorials and workshops, around many different themes within the field of color imaging, organized in sessions on vision and color science, color management and device characterization, color in displays, color and printing, color image processing, and multispectral color imaging. Proceedings from the symposium including short abstracts of the keynotes and invited talks, and extended abstracts of the submitted contributions, were distributed to the attendees and subsequently published in Gjøvik University College's report series (Number 4, 2007).

The eight papers in this special issue are peer-reviewed full-length research papers based on selected presentations from the symposium.

We start off with a paper on **“Neural mechanisms of chromatic and achromatic color vision”** by two of Norway's senior researchers in the field of color vision and optics, Arne Valberg and Thorstein Seim. Building upon earlier electrophysiological recordings from the lateral geniculate nucleus (LGN) of the macaque monkey, done in professor Barry B. Lee's laboratory at the Max Planck Institute of Biophysical Chemistry in Göttingen, Germany, the authors propose a model for neural processing of color and brightness/lightness information that starts in the cone receptors and continues in the opponent cells of the retina, LGN and visual cortex. Based on this model they suggest a

way in which the brain might combine inputs from the geniculate to obtain correlates of chromatic and achromatic color vision and of brightness/lightness perception. In particular, they demonstrate for the first time how combinations of ‘L– M’ and ‘M–L’ parvocellular opponent cells may lead to a quantitative account of brightness and blackness scaling.

From this basic research we venture directly into one of the applied research fields in which color science definitively has ‘made it into production’, namely color management. Since the establishment of the International Color Consortium (ICC) in 1993, their standards for color management architecture and file formats have contributed greatly to improved color consistency and quality in the media technology industry. The paper **“Recent Developments in ICC Colour Management”** by Phil Green, Jack Holm, and William Li, all key contributors to the ICC, gives a useful account of the most recent improvements of the ICC standard, version 4 and later amendments, explaining important new concepts such as the perceptual reference medium, the colorimetric intent image state tag, the on-line profile registry, and the floating point device encoding range. These developments collectively move the ICC color management architecture further away from its original static processing model to a more dynamic and flexibly programmable one.

In our next paper, **“The PLVC display color characterization model revisited,”** Jean-Baptiste Thomas and his co-authors Jon Y. Hardeberg, Irène Foucherot, and Pierre Gouton propose an in-depth study of a model for colorimetric characterization of displays which was originally proposed by Farley and Gutmann in 1980; the PLVC (Piecewise Linear assuming Variation in Chromaticity) model. This model has not been widely used, probably since for CRT (Cathode Ray Tube) display technology it does not provide significant improvements in accuracy, compared with the more common and less complex PLCC (Piecewise Linear assuming Chromaticity Constancy) model. With today's computers, computational complexity is less of a problem, and contemporary display technologies show a different colorimetric behavior than CRTs. The authors generalize and reformulate the PLVC model, and demonstrate experimentally that using the PLVC model is highly beneficial for Liquid Crystal Displays (LCD). Particularly, they obtain a reduction of model prediction error to about a third compared with a black corrected PLCC model.

Next, in **“Color Mixing and Color Separation of Pigments with Concentration Prediction,”** Pesal Koirala, Markku Hauta-Kasari, Birgitta Martinkauppi, and Jouni Hiltunen propose a color mixing and color separation method for opaque surfaces made of pigments dispersed in filling materials. The method is based on the Kubelka-Munk model. Eleven different pigments with seven different concentrations were used as training sets. The amount of concentration of each pigment in the mixture was estimated from the training sets by using the least squares pseudo-inverse calculation. The optimal pigment set and its concentrations were estimated by minimizing the spectral difference between the measured and predicted spectral reflectances.

Next follows two papers from the symposium’s session on color image processing. In **“Perceptual Evaluation of Color Gamut Mapping Algorithms,”** Fabienne Dugay, Ivar Farup, and Jon Y. Hardeberg present psychophysical experiments to evaluate the quality of five color gamut mapping algorithms (GMAs), – two non-spatial and three spatial algorithms. The recommendation of CIE TC8-06 has been followed as closely as possible in the experiments which included 20 test images, 20 observers, one test done on paper and a second one on display. Even though the results do not show any overall “winner”, one GMA is definitely perceived as less accurate. The importance of a high number of test images to obtain robust evaluation is underlined by the high variability of the results depending on the test images. Significant correlations between the percentage of out-of-gamut pixels, the number of distinguishable pairs of GMAs and the perceived difficulty to distinguish them have been found. The type of observers is also of importance. The experts, who prefer a spatial GMA, show a stronger consensus and look especially for a good rendering of details, whereas the non-experts hardly make a difference between the GMAs.

In **“Video-based Analysis for Facial Skin Appearance with Automatic Face Tracking”** by Takao Makino, Koichi Takase, Norimichi Tsumura, Toshiya Nakaguchi, and Yoichi Miyake, the authors propose a method to analyze the appearance of facial skin using video recordings and an automatic face tracking technique. The change of skin appearance under various illuminations is observed by illuminating the face from various light source positions, and the changes in facial appearance are recorded as a video stream during this measurement.

The recorded video stream is then analyzed to obtain the bidirectional reflectance distribution function (BRDF) at each position of the facial skin. Automatic face tracking is necessary to compensate the facial movement in order to obtain an accurate BRDF measurement at each position. Since conventional face tracking techniques cannot be used for a face illuminated from various light source positions, a new face tracking technique that is robust to the various face shadings has been developed. The experimental studies reported in the article demonstrate the effectiveness of both the proposed video-based analysis technique and the automatic face tracking technique.

Finally, we conclude this special issue with two articles from the session on multispectral color imaging. First, on the acquisition side, in **“Reflectance estimation using PCA and wavelet basis decomposition”** the authors, Alamin Mansouri, Tadeusz Sliwa, Jon Y. Hardeberg, and Yvon Voisin, deal with the problems of representation and estimation of spectral reflectance functions in the context of multispectral imaging. Because the estimation of such functions is an inverse problem, slight variations in input data completely skew the expected results. Therefore, stabilizing the estimation process is highly required. To do this, the authors propose to use wavelets as basis functions, and compare this approach to using Fourier and Principal Component Analysis (PCA) bases. The PCA method is training set dependent, and confirms its expected robustness when applied to reflectance estimation of the training sets. On the other hand, Fourier and wavelet bases allow for a better generalization.

Then, concerning the reproduction side, in **“Spectral color reproduction minimizing spectral and perceptual color differences”** by Jérémie Gerhardt and Jon Y. Hardeberg, the problem of colorant separation for multi-colorant printers is dealt with. The reproduction goal is to obtain the best colorimetric and spectral reproduction quality under different illuminants. The proposed colorant separation is performed by inverting the spectral Yule-Nielsen modified Neugebauer model using weighted combinations of spectral difference color difference under different illuminants as minimization criteria in an iterative optimization process. The experimental results indicate that this approach gives superior results compared to the more common pure colorimetric or spectral approaches.

Jon Y. Hardeberg, Guest Editor

Continued on page 11

CALENDAR

Please send any information on Member-Body and other organization meetings involving color and appearance functions to:

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2009

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|---------------------|--|
| Jan 21-23 | ASTM E12, Color and Appearance , Embassy Suites Hotel; Ft. Lauderdale, Florida, www.astm.org |
| Mar 10-12 | AATCC's International Conference (IC) , Hilton Myrtle Beach Resort, Myrtle Beach, SC, 919-549-8141, www.aatcc.org/ice/index.cfm |
| Mar 15-17 | TAGA 61st Annual Technical Conference , The Hotel Monteleone, New Orleans, Louisiana, www.gain.net/eweb/docs/taga/09_taga_cfp.pdf |
| Mar 22-25 | 93rd Annual NAPIM Convention , Omni Orlando Resort at ChampionsGate, Orlando Florida, www.napim.org/publicarea/Conv2009/Program.aspx |
| May 25-26 | CIE Midterm Meeting 2009 , CIE Central Bureau, organizer, Budapest, Hungary, ciecb@cie.co.at |
| May 4 - 7 | Archiving 2009 , the Society for Imaging Science and Technology et al., Hilton Crystal City, Arlington, Virginia, 703-642-9090, www.imaging.org/conferences/archiving2009/ |
| May 27-29 | LEDs and Solid State Lighting Conference , CIE-Hungary, Budapest, Hungary, www.cie.co.at/index_ie.html |
| Jun 1-3 | Light and Lighting, CIE Division 1 Meeting , Budapest, Hungary, www.cie-hungary.hu |
| Jun 7 | ISCC 2009 Annual Meeting , in conjunction with the Munsell Color Science Laboratory Symposium, Rochester, New York 703-318-0263, www.iscc.org |
| Jun 8 | Munsell Color Science Laboratory 25th Anniversary Symposium , Rochester, New York, mcs.l.rit.edu |
| Jun 23-25 | ASTM E12, Color and Appearance , American Society for Testing and Materials, National Institute of Standards and Technology, Gaithersburg, MD, www.astm.org |
| Sep 27-Oct 2 | AIC 11th Congress , Sydney, Australia, Organizer: Colour Society of Australia, Contact: Nick Harkness, www.aic2009.org |
| Sep 29-Oct 1 | Color and Food: From the Farm to the Table, AIC Interim Meeting , Mar del Plata, Argentina, Organizer: Grupo Argentino del Color, Contact: María L. F. de Mattiello gac@fadu.uba.ar . |
| Oct 13-14 | ISCC/CORM Special Topics Conference on Lighting in Art, Commercial and Retail Spaces , ISCC - 703-318-0263, www.iscc.org ; CORM - www.corm.org |
| Nov 9-11 | Seventeenth Color Imaging Conference , The Society for Imaging Science and Technology cosponsored by the Society for Information Display (SID), Albuquerque, New Mexico, 703-642-9090, www.imaging.org |
| Nov 15-17 | IES Annual Conference , Illuminating Engineering Society, Seattle, Washington, www.ies.org |

NRC to Donate Stiles Trichromator

National Research Council of Canada (NRC) is currently planning to dismantle its Stiles trichromator and would be happy to donate it to whoever can make good use of it. The instrument is described briefly in Wyszecki and Stiles' *Color Science: Concepts and Methods, Quantitative Data and Formulae*, 2nd ed. p. 476. Such instrument was used to develop the CIE 1964 color matching functions, and NRC's instrument remains one of the last research-grade visual colorimeter in existence today. The volume of the instrument is approximately 16 feet wide by 8 feet depth by 8 feet high, and the weight is well over a ton. Much of the electronics, in particular three large power supplies, need to be refurbished. New technology could also be incorporated into the instrument to make it handier than it was in the fifties. Parties interested can contact Réjean Baribeau 613-993-9351 or Joanne Zwinkels 613-993-9363.

Réjean Baribeau, NRC

Publications Available from ISCC Office

ISCC 76th Annual Meeting Program and Abstracts, ISBN 978-1-4243-4273-0 \$25.00*

Color and Light by Fred W. Billmeyer Jr. & Harry K. Hammond., III. Authorized reprint from: ASTM Manual 17, Copyright 1996, ASTM International, 100 Bar Harbor Dr., W. Conshohocken, PA 19428.

\$5 ea or 20 copies/\$50.00

Demystifying Color by Bob Chung, 11 pages. Discusses and explains ten myths about color.

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In This Issue

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[Editor's Note:

Also in this issue we have three communications, two book reviews, and one publication briefly mentioned, as well as the Annual Index. In the Communications and Comments section Michael Brill writes about Transformation of Primaries, Roy Berns discusses the Proper Use of Indices of Metamerism, and Rolf Kuehni, David Hinks, and Renzo Shamey present Experimental Object Color Unique Hue Data. Jan Koenderink reviews the translation of Philipp Otto Runge's *Color Sphere*, and Renzo Shamey reviews *Books on Color* by Roy Osborne. In addition there is an erratum for the Brill Susstrunk Communication that appeared in the last issue.

Ellen Carter, Editor, CR&A]

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All submissions must be in English. Please submit materials by the 15th of each even numbered month. Materials submitted later may be printed in the following issue.

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