Inter-Society Color Council *News*

Issue 434 July—August 2008

Presidents Column

This is the last column I will write as President of the ISCC. What a great two years these have been. They started with the symposium in Ottawa on the twin 75th anniversaries of the ISCC and the CIE Standard Observer, included an Annual Meeting in Kansas City, and will end with a series of meetings in Baltimore, the site of one of my most memorable ISCC meetings. Along the way, we had a joint meeting with the AATCC, which we are planning to turn into a regular occurrence. And we completed planning for a Special Topics meeting with the IS&T and SID, which we have turned into a regular occurrence, following the Color Imaging Conference in November.

Rob Buckley, President ISCC

How has all this been possible? That brings to me to the other and most remarkable thing about these last two years for me: the people I have worked to make all this happen—all volunteers, dedicated to this organization and the idea it embodies. More on that in a moment. There are the Board members, current and former, since even those who are no longer on the Board still show an enthusiasm for serving the Council in some way. These are the people who have taken the lead in planning, organizing and running our meetings, with help from the Interest Group chairs, who recruit speakers, from Romesh Kumar, who finds us a place to hold the meeting, and from Cynthia in the ISCC Office.

Communication is a significant part of any organization and in particular of what the ISCC does. Besides our meetings, we have the newsletter, which Mary, Tek and Cynthia have putting out six times a year. From personal experience working with Mary I know what a remarkable feat this has been. The newsletter now includes the Hue Angles column, edited by Mike Brill, with vignettes on color from ISCC members. And we also have the website, which has a new look and feel, thanks to our webmaster, Dave Wyble.

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What is it that attracts us to the ISCC? I can only speak with certainty about my own situation and why I am passionate about the ISCC. The Council occupies a unique position in the field of color. I know of no other professional society that is dedicated to the idea of bringing together specialists in different areas of color so that they can share interests and results across the boundaries between their specialties. Color, in particular, lends itself to and benefits from this kind of multi-disciplinary interaction.

By serving as a link between diverse areas of color, the ISCC makes it possible for work in one to enrich the application and enjoyment of color in another. I have my own examples of this happening: I expect those of you reading this have your own. I am reminded of this potential for cross-fertilization and stimulation every time I look at the ISCC logo, which includes a triangle whose vertices I have always taken to represent the arts, science and industry—the three areas of color interest brought together by the ISCC.

It is reassuring to me at least to know that an organization such as the ISCC exists, in a world where specialization seems to be emphasized and where professional societies no longer hold the position they did in the interchange of ideas. However, if you believe as I do that interesting things happen at boundaries, then the ISCC is well positioned for an interesting future, building on the energy, enthusiasm and dedication of its members.

Rob Buckley,
ISCC President

It's Baltimore for the ISCC Annual Meeting and Special Topics Symposium, Sept. 14-16

HUE ANGLES

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

New technology prompts anticipatory thoughts about New technology prompts anticipatory thoughts abouthow we can use it. Now, some adaptations of carbon nanotubes seem ready to be great light absorbers and others should make great detectors. Let's take a look, then…

Black to the Future

A bit over a year ago, one of us (MHB) discussed parallel development of similar innovations for power engineering and color-measurement technology ("Power to the pupil: color vision, cameras, and the energy crisis," Issue 427). Now another example of the phenomenon is emerging—the interaction of nanotubes with light. Carbon nanotubes are strong enough so that, even when very thin, they can be vertically grown to considerable length on a horizontal surface. Growing carbon nanotubes on a surface produces a region of very low refractive index at that surface, from which very little light is reflected over a wide range of angles. Depending on the dimensions of the nanotubes and on materials with which they might be coated, the light incident on the surface is efficiently absorbed and transduced into either heat or electricity.

Consider the low-reflectance objective [1]. To further darken a black carbon surface, investigators in RPI and at Rice roughened the surface by a carpet-like arrangement of carbon nanotubes (.01" long, 1/30,000 as wide) standing on their ends. The result is a surface with a reflectance as low as 0.045 percent (three times darker than any previous material) and a refractive index that could theoretically be as low as 1.01. We'll hear more about the nanotube absorber at the November ISCC topical meeting on black and white.

The efficient-electricity objective [2] uses carbon nanotubes in a different geometry and context to obtain an efficient solar-cell design. Jud Ready at Georgia Tech Research institute (GTRI) developed photovoltaic cells that trap light between their tower structures, which are about 100 microns tall, 40 microns by 40 microns square, 10 microns apart-and grown from arrays containing millions of vertically aligned carbon nanotubes. Conventional flat solar cells reflect a significant portion of the light that strikes them, reducing the energy they absorb. Light incident in the new design is turned efficiently into electricity through semiconductor layers (cadmium telluride and cadmium sulfide) deposited on the nanotube "towers." In a solar cell so designed, the carbon nanotubes serve not only to support the structure in three dimensions, but also to conduct the charge carriers quickly away from the absorption site before they can recombine and waste energy.

For spectrophotometry (a subject near and dear to many ISCC members), one is prompted by both these technologies to envision a spectrophotometer in which one or more of the following is incorporated:

Following [1], using vertically aligned nanotubes that are thousands of times longer than they are wide, one could comprise:

1. Black surfaces for minimizing stray light in optical instruments.
2. Light traps for suppressing unwanted diffraction orders.
3. Gloss traps for removing specular reflection.
4. Black calibration standards.

Using nanotubes only a few times longer than they are wide (as suggested by [2]) it may be possible to comprise:

5. An array of nanotubes to guide light to a detector very efficiently. The longer the nanotubes, the more they can guide light in a collimated way and eliminate unwanted diffraction orders. If the nanotubes have different diameters (commensurate with wavelengths of light), they can wavelength-select, perhaps enough to make gratings unnecessary.

The originators of [1] have cross-claimed into the solar-power arena, saying "The observed reflectance from the nanotube arrays is the lowest-ever reported reflectance from any material and could have applications from solar energy conversion to pyroelectric detectors." For such adaptations,

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however, there remains the daunting problem of transducing the absorbed light efficiently. For any applications, the long nanotubes also apparently pose health risks similar to those of asbestos once they get in our lungs [3]. The future is once again obscure, then, as perhaps it should be.

Michael H. Brill, Alan Ingleson, Chuck McLellan
Datacolor

[1] Z-P Yang, L. Ci, JA Bur, S-Y Lin, PM Ajayan, Experimental observation of an extremely dark material made by a low-density nanotube array, *Nano Letters* **8**, No. 2 (Feb. 2008), 446-451.

[2] J. Toon, NanoManhattan: 3-D solar cells boost efficiency while reducing size, weight, and complexity, Georgia Tech News, 11 April 2007. See also: http://qualitydigest.com/IQedit/QDarticle_text.lasso?articleid=12492

[3] C-C Chou, et al., Single-Walled Carbon nanotubes can induce pulmonary injury in mouse model, *Nano Letters* **8** No. 2 (Feb 2008) pp 437 – 445

See www.aic2009.org/ for conference details

ISCC Joins in Presenting DevCon 2008

The ISCC, along with the IS&T and SID, will join the ICC in presenting DevCon 2008. Organized by the ICC, DevCon 2008 is the premiere learning and networking event for users and developers working with ICC-based color management. The meeting will be held Monday, Nov. 10 at the Benson Hotel in Portland, Oregon.

DevCon 08 will consist of talks, tutorial presentations, demos and exhibits, followed by a networking reception. This is at the beginning of the week that includes the IS&T/SID Color Imaging Conference and ends with the ISCC Black and White Special Topics meeting.

The ICC, IS&T and SID are all member bodies of the ISCC

Since the ISCC is co-presenting DevCon, ISCC members will receive the same registration rate as ICC members.

For sponsorship opportunities, the latest information on DevCon 08 or to register for the meeting, go to www.color.org/devcon08.xalter.

Member News

Send Contributions to Cynthia Sturke (isccoffice@cs.com)

IS&T to Sponsor Robert W. G. Hunt Symposium

The IS&T is honoring Robert W. G. Hunt, the 2007 ISCC Godlove Awardee, with a special symposium to be held in conjunction with the 16th Annual Color Imaging Conference in Portland, Oregon, November 14, 2008. The symposium titled "Robert W. G. Hunt: A Man for All Imaging Systems," honors more than a half century of his research and application in color reproduction and color vision. The program, beginning at 2:00 p.m. consists of invited papers from Roy Berns, Ronnier Luo, and Hirohisa Yaguchi. A reception will follow at 6:00 p.m. and a banquet at 7:00 p.m. with remarks by Dr. Hunt.

The symposium follows the CIC 16 sessions and is the afternoon and evening just before the ISCC/IS&T/SID Black and White Conference.

The invited presentations for the Hunt Symposium are: Objectives in Color Reproduction: A 21st Century Progress Report, by Roy Berns, Rochester Institute of Technology (USA); Color Vision and More Comprehensive Color Appearance Models by Hirohisa Yaguchi, Chiba University (Japan); and Holy Grail of Colour Appearance Research by Ronnier Luo, University of Leeds (UK).

Additional information on registration for the symposium and banquet can be found at www.imaging.org/conferences/cic16/index.cfm.

ISCC/IS&T/SID Special Topics Conference
The Black and White Meeting
Saturday, November 15

A one-day meeting with a program devoted to the special challenges and solutions for black and white, two of the most important properties of a colored image.

White 8:30 – 10:15

Dave Wyble (Rochester Institute of Technology), *Fluorescent Excitation from White LEDs*
Byron Jordon (National Resource Council of Canada), *Indoor daylight: Illuminant C with UV extrapolation*
Eva-Maria Löffler (Abteilung PrePress-Reproduktion), *Estimating the Spectral Reflectance of Fluorescent Offset Papers for Varying Illuminants*
Veronika Lovell & Danny Rich (Sun Chemical), *Gärtner-Griesser Coefficients for UV Calibration for CIE Illuminant D50 Simulators*

Black 10:45 – 12:00

Klaus Richter (Berlin University of Technology), *Perceived and Device Black and White as Reference Colours in Image Technology*
Renzo Shamey and Reid Clouts (North Carolina State University), *Perceptual Assessment of Blackness*
Jack Holm (Hewlett Packard), *Designing the neutral scale – noise and perception*

Lunch 12:00 – 1:15

Measurement, Calibration and Standards 1:15 – 3:20

Brian Gamm (Rochester Institute of Technology), *The Characteristics of Optical Brightening Agent Fluorescence Emission and How they Relate to Methods for UV-cut Measurement*
Roland Connelly (X-Rite Inc.), *AATCC UV Calibration Textile standard*
Ye (David) Chen (University of Leeds), *Evaluation of UV Calibration and Whiteness Formulae*
Joanne Zwinkels (National Resource Council of Canada), *The Evolution of ISO 2469 for International Agreement on Optical Properties for Pulp and Paper*
Pat Robertson (Technidyne Corp.), *ISO TC6/WG3 and the Role of Authorized Labs: Transferring Calibrations to Users and Consumers*

Registration

Please watch the web sites www.iscc.org or www.imaging.org or a future ISCC newsletter for a registration information and a form.

For the latest information on the conference, go to www.iscc.org

INTER-SOCIETY COLOR COUNCIL

2008 Annual Meeting and

Perception and Measurement of Safety Colors Special Topics Symposium Programs

September 14 – 16, 2008, Baltimore, Maryland

The Inter-Society Color Council (ISCC) will hold its 2008 Annual Meeting in Baltimore, Maryland at the Tremont Suites Plaza Hotel from Sunday, September 14 through Monday, September 15, 2008. The theme of the two day 2008 Annual Meeting is, "The RGBs of Color." The program will consist of the following three components:

- Are You Seeing Red? The tying of emotion to color
- How Green Is My Color? The influences of sustainability on color
- Is That the Blue You Wanted? Influences of light and media on the color we see

In addition on Tuesday September 16, the ISCC will hold a "Safety Color Expert Symposium." This one day event will cover all facets of Safety Colors including the perception, measurement, and standardization of regular, fluorescent and photoluminescent materials, integrating safety colors into fashion and high visibility vests, and advanced topics like the effect of new lighting technologies on safety devices.

Sunday, September 14, 2008

09:00 - 10:00 Registration & coffee

10:00 - 10:15 Welcoming address & opening remarks

10:15 - 10:45 Color Flashback – "A retrospective on the color courses of Ralph Stanziola," Kim Galloway

10:45 - 11:45 **"Are You Seeing Red?" - Art, Design, Psychology, Interest Group III**

Leslie Harrington –"The reds of love and rage: A note on the risk of eliciting negative emotions"

Kate Smith – "Macro mood to industry insight"

11:45 - 01:00 Lunch (on your own)

01:00 - 03:00 **"Are You Seeing Red?" - Art, Design, Psychology** - continued

Phil Kenyon – "Color harmony modeling, helping people pick colors that FEEL good"

Mark Woodman – "World colors - Changing inspirations"

Steven Bleicher – "The socioeconomics of color psychology"

Nancy Kwallek – "A multi-disciplinary model for teaching COLOR"

03:00 - 03:30 Refreshment break

03:30 - 05:00 **"How Green is My Color?" - Industrial Applications, Interest Group II**

Karen Braun – "Color adjustments using natural language"

Art Schmehling – "Color vision test and their application in industry"

Frank J. Iannarilli – "Model-based paint selection for helicopter camouflage"

Monday, September 15, 2008

08:00 - 09:00 Registration & continental breakfast

09:00 - 10:30 **"How Green is My Color?" - Industrial Applications - continued**

Fred Shapiro – "Sustainability as a technical challenge"

Scot R. Fernandez – "The "Green" evaluation of Hallmark's color reproduction system"

David Oakey – "Respect for the future through the use of color"

10:30 - 11:00 Refreshment break

Monday, September 15, 2008, Continued

11:00 - 12:00 **"Is That the Blue You Wanted?" - Color Measurement, Interest Group I**

Roy Berns – "An end-to-end spectral color reproduction system"

YaQi Li – "Formulas for calibrating low-scattering samples using Kubelka-Munk model"

12:00 - 01:30 Award Luncheon & Business Meeting

01:30 - 04:30 **"Is That the Blue You Wanted?" - Color Measurement - continued**

Mark C. Updegraff – "Impact of surround on perceived chromatic distances"

Michael Jahn – "What color is that cheese doodle, really? - a day in the life of a color specifier"

J*im Roberts* – "A new tool for measuring and characterizing effect pigments"

Hugh Fairman – "Comparison of Li, Luo, Rigg with ASTM method of calculating weight sets for tristimulus integration"

03:00 - 03:30 Refreshment break

04:30 - 05:00 ISCC Business Meeting

06:00 - 07:00 Expert Symposium Reception

Tuesday, September 16, 2008 -- Safety Colors Special Topics Symposium

07:30 - 08:30 Registration & continental breakfast

08:30 - 08:45 Welcome address

08:45 - 11:45 **Special Symposium - Session I**

Jeffrey Lindley, Associate Administrator for Safety, FHWA – "How safe are your colors?"

David Burns – "The current state of national and international safety color standards"

Janice Comer Bradley – "ANSI/ISEA 107-2004 and 207-2006: Implementation of safety standards"

John A. Molino – "A comparison of colored retroreflective sign sheeting under daylight conditions: perception versus measurement"

Roxane Mukai – "Development of the purple EZ pass indicators"

10:10 - 10:30 Refreshments & Exhibitors

11:45 - 12:00 **Exhibitor 3-minute introductions**

12:00 - 01:00 Lunch (provided)

01:15 - 04:15 **Special Symposium - Session II**

Tom Hicks – "Implementing fluorescent yellow on traffic signs at critical locations"

Nurhan Becidyan – "Traffic sign systems using UV fluorescence & phosphorescence"

Joanne Zwinkels – "NRC calibration procedures and standards for measurement of fluorescent color"

James P. Colgate – "Photoluminescent egress path markings in NYC"

Gorow Baba – "The activation and afterglow characteristics of phosphorescent safety signs"

Dave Wyble – "The effects of solid state lighting technology on safety devices"

2:15 - 2:45 Refreshments and Exhibitors

04:15 Closing remarks

COLOR RESEARCH AND APPLICATION

In This Issue, August 2008

We open this issue with the second part of a series of articles by Antal Nemcsics "Experimental Determination of the Laws of Color Harmony." In this part, Harmony Content of Different Monochrome Color Pairs, Dr. Nemcsics discusses the relationship of color harmony to intervals in brightness and saturation. Part 1 focusing on the harmony content of different scales with similar hue was published in the December 2007 issue of this journal. There will be at least two other parts to come in the future.

Our next article deals with one of the most important and controversial subjects in colorimetry: the validity of Grassman's law of additivity. This topic is part of the work of the Commission Internationale de l'Éclairage's (CIE) technical committee 1.56 on Improved Color Matching Functions. In "Grassmann's Laws and Individual Color-matching Functions for Non-spectral Primaries Evaluated by Maximum Saturation Technique in Foveal Vision," Claudio Oleari and Maura Pavesi offer strong support to Grassmann's laws of color mixture and especially intra-observer primary transformation. However, we can not say that this article definitively ends the controversy, I am sure that we will hear more on this topic in the future. The authors also report in this article that Grassman's law of proportionality is checked directly by reducing matching lights with a neutral filter, and that that law holds true.

Our next three articles deal with color products in one way or another. First let us talk about color reproductions. When going from a scene to a color reproduction, we often use a colorimetric space to connect data from the original to the reproduction. However, such reproductions will appear different when the illuminant changes. In an attempt to maintain color matches under any illuminant, it is suggested to use a spectral connection space. The problem with this is that the look up tables can grow very large with many wavelengths under consideration. Researchers at Rochester Institute of Technology have proposed using an interim connection space called LabPQR, which reduces the spectral dimensions from approximately 31 to six. The dimensions are *L, a, b,* and three metameric blacks derived from the spectral decomposition of the printers. In this issue Shohei Tsutsumi, Mitchell R. Rosen, and Roy S. Berns examine and refine this system even further. They find that a 5-dimensional (with two metameric blacks) unconstrained approach achieved equivalent levels of performance as the spectral (31 dimension) approach within simulated printer spectral gamut limitations. In "Spectral Color Management using Interim Connection Spaces Based on Spectral Decomposition," they discuss how to devise the metameric black, the interactions between generalization and dimensions, and the quality tradeoffs between the two approaches to LabPQR and the number of spectral dimensions.

The next article in this group deals with producing colored materials. It is expected that when the same color formulation is used in the same materials the resulting color will match the previous batch. However, there are always batch-to-batch variations. These variations may be the result of weighing errors when adding the components to the batch or possibly from different batches of colorant with slight variations in tinting strength. Over ten years ago in this journal Sluban and Nobbs introduced the concept of color sensitivity of a formulation recipe. The idea was to select the appropriate recipe that was least sensitive to these sources of error. In this issue Shahram Peyvandi, Seyed Hossein Amirshahi and Boris Sluban investigate the quality of the coloration process by determining the precision and accuracy of different color recipes. They present alternative definitions of colorant strength sensitivity and total colorant sensitivity of a formulation and balance the two types of errors. "The Total Colorant Sensitivity of a Color Matching Recipe: An Approach to Colorant Weighing and Tincturial Strength Errors" presents the methods for calculating these new quantities and reports on the results of tests involved with repeated dyeings.

The third article deals with another problem in developing colorant formulation recipes. The best way to have reproducibly colored materials is to use the same colorants. If the colorant combination is not known ahead of time, often it is difficult to determine which colorants to use, especially when the colorants have broadly overlapping absorption bands. In "Determination of Bicomponent Dye Solutions by Means of Zero-Crossing Point Derivative Spectroscopy," Ali Shams-Nateri and Ehsan Ekrami describe

a new spectrophotometric method for determining textile dyes with different type of overlapping spectra. The proposed derivative method is simple, rapid, and suitable for quantitative analysis of bi-component dye solutions.

In our last full-length article in this issue, Dr. Dianne Smith, from the School of Design of Queensland University of Technology in Australia, talks about the importance of understanding the active role that color plays in the relationship between a person and the surrounding environment. She introduces the "Colour-Person-Environment Relationships" as a concept that should be considered in a range of disciplines involved in environmental design including urban design, landscape architecture, interior design, industrial design, and architecture. She also discusses the use of color in transition spaces that bridge various environments. Finally she encourages further research into the color-person-environment relationships.

Next is a Note by Michael H. Brill, "Minimal Von Kries Illuminant Invariance." This note reexamines a theorem on conditions for Von Kries adaptation to give color constancy. Proposed in 1982 by Gerhard West and the author, the theorem clearly applies when illuminants are exchanged within a function subspace. The "minimal" character of the current note is that the theorem's whole subspace formalism applies even when there are only two illuminants. Brill discusses how the formalism could be combined with spectral sharpening (another Von Kries "adaptation") and also how an analogue of the theorem clarifies Imura's fluorescence-estimation algorithm (CR&A, Issue 3, 2007).

In this month's Color Forum, Rolf Kuehni writes about "Color Difference Formulas: an Unsatisfactory State of Affairs." With all the tweaking and adjustments, current color difference equations predict the average of today's perceptibility data with only about a 65% accuracy rate. Therefore, Mr. Kuehni uses the Color Forum to propose the development of new uniformly established perceptual data and a new formula/system that predicts the visual results, statistically verified to represent the world-average observer, with an accuracy of 95% or higher.

Next Karin Fridell Anter writes about "Colouring the Past – on colour in archaeological research." In this review of the book *Colouring the Past. The Significance of Colour in Archaeological Research* edited by Jones and MacGregor, Dr. Anter opens the doors for a mutually fruitful exchange concerning research results as well as theoretical and methodological approaches. Anna Franklin reviews of *Anthropology of Color*, which was edited by MacLaury, Paramei, and Dedrick. Then we close this issue with an announcement about the second Materials & Sensations (MS2008) workshop, which will be held in Pau, France.

Ellen Carter
Editor, Color Research and Application

Preliminary Program for CIC16

The 16th Color Imaging Conference Preliminary Program is now available at www.imaging.org/conferences/cic16/. The conference is to be held November 10-15, 2008 in Portland, Oregon at the Benson Hotel.

The early conference registration deadline is Monday, October 13, 2008. The hotel reservation deadline is Saturday, October 18, 2008.

Meeting highlights include:

- ICC DevCon'08 meeting on Monday
- Full schedule of short courses Monday and Tuesday
- Hunt two-day short course
- Three full days of exceptional technical sessions
- Friday Symposium, reception, and banquet to honor the work of Robert W. G. Hunt
- ISCC Special Topics Conference: The Black and White Meeting

CALENDAR

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

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2008

Sep 14-15	**Inter-Society Color Council (ISCC) 2008 Annual Meeting**, Baltimore, Maryland, 703-318-0263, www.iscc.org
Sep 16	**ISCC Special Topics Symposium "Perception and Measurement of Safety Colors,"** Baltimore, Maryland, 703-318-0263, www.iscc.org
Sep 21-23	**Color and Appearance Division RETEC® 2008 Conference,** SPE Color & Appearance Division (SPECAD) & Detroit Colour Council (DCC) , Hyatt Regency, Dearborne, Michigan, specad.e-xyn.com/index.php?navid=101
Sep 23-25	**Ink - Materials and Technologies for a Sustainable Future,** 2008 Technical Conference NAPIM/NPIRI, Loews Ventana Canyon Resort, Tucson, AZ, www.napim.org/publicarea/TC2008/TechConf2008Program.aspx
Oct 15-17	**International Coatings Expo, ICE 2008**, Federation of Societies for Coatings Technology, Lakeside Center, McCormick Place, Chicago, IL, 610-940-0777, www.coatingstech.org/Programs/index.cfm?event=ICEAttendeeInfo
Oct 19-23	**Frontiers in Optics 2008 Laser Science XXIV**, OSA'a 92nd Annual Meeting, Rochester Riverside Convention Center, Rochester, NY www.frontiersinoptics.com/
Oct 22-24	**Materials and Sensations (MS2008) 2nd edition**, IPREM - Pau, France, www.2psm.fr/ms2008/index.php
Nov 10-14	**Sixteenth Color Imaging Conference,** Society for Imaging Science and Technology, and Society for Information Display, The Benson Hotel, Portland, Oregon, www.imaging.org
Nov 11-14	**Views on Hues, CMG's 2008 Fall International Conference**, Phoenix, AZ, colormarketing.org/Visitors.aspx?id=893&
Nov 15	**ISCC/IS&T Special Topics Meeting**, Inter-Society Color Council and Society for Imaging Science and Technology, The Benson Hotel, Portland, Oregon, 703-318-0263, isccoffice@cs.com
Nov 17-20	**The 17th William T. Pecora Memorial Remote Sensing Symposium**, The Imaging and Geospacial Information Society (asprs), Adams Mark Hotel, Denver, CO, www.asprs.org/pecora17/index.php

2009

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, LO, www.gain.net/eweb/docs/taga/09_taga_cfp.pdf
May 25-26	**CIE Midterm Meeting 2009**, CIE Central Bureau, organizer, Budapest, Hungary,ciecb@cie.co.at
May 27-29	**LEDs and Solid State Lighting Conference,** CIE-Hungary, Budapest, Hungary, www.cie.co.at/index_ie.html

2009, Continued

Jun 1-3	**Light and Lighting, CIE Division 1 Meeting**, Budapest, Hungary, www.cie-hungary.hu
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
Sept 27-Oct 2	**AIC 11th Congress,** Sydney, Australia, Organizer: Colour Society of Australia, Contact: Nick Harkness, www.aic2009.org

Magnetic Sense Linked to Molecule

Science News reports in an article by Ashley Yeager, in the July 20, 2008 Web edition that scientists have identified a molecule that fruit flies need to sense magnetic fields. The molecule, cryptochrome, acts as a light receptor and is sensitive to blue and ultraviolet light.

"This is a huge finding. It really says that cryptochromeis involved in a living animal's response to magnetic fields," says study coauthor Steven M. Reppert, a neurobiologist at the University of Massachusetts Medical School in Worcester.

To test the molecule's role in fruit flies' orientation, Robert Gegear, a post-doctoral researcher in Reppert's lab, built a T-shaped maze for the fruit flies to navigate. Some flies were trained to associate the magnetic coil with a food reward. When exposed to visible and ultraviolet light and the magnetic field, the trained and non-trained flies tended to respond to the magnetized coil.

But when the researchers blocked the specific blue-light and ultraviolet wavelengths that activate the flies' cryptochrome, none of the flies flew toward the magnetic field—not even the ones that linked food with that coil. Mutant flies with damaged or nonexistent cryptochrome light receptors did not respond to the magnetic field either.

Or more information, see www.sciencenews.org/view/generic/id/34266/title/Magnetic_sense_linked_to_molecule

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.

$5 ea or 20 copies/$50.00

ISCC 75th Anniversary Commemorative CD and Pin $30*

Guide to Material Standards and Their Use in Color Measurement (ISCC TR-2003-1) $50*

*Plus shipping and handling

Advertising Policy

The ISCC advertising policy for the ISCC News is as follows: Pre-paid color-related advertising will be accepted 30 days in advance of the publishing date. The rates are:

$100 business card-size $250 1/4 page

$500 1/2 page $1,000 full page

The editor reserves the right to determine the acceptability of the advertising. A 20% discount is available for a yearly contract.

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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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ISCC Member Bodies

American Association of Textile Chemists and Colorists (AATCC)
American Society for Testing and Materials International (ASTM)
American Society for Photogrammetry & Remote Sensing (ASPRS)
The Color Association of the United States, Inc. (CAUS)
Color Marketing Group (CMG)
Color Pigments Manufacturing Association (CPMA)
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Society for Information Display (SID)
Society of Plastics Engineers, Color & Appearance Div.(SPE)
Society for Imaging Science and Technology (IS&T)
Technical Association of the Graphic Arts (TAGA)

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ISCC 2008 Annual Meeting and Expert Symposium

The RGBs of Color
and The Perception and Measurement of Safety Colors

Annual Meeting: September 14 – 15, 2008 Expert Symposium: September 16, 2008

Tremont Suites Hotel, Baltimore, Maryland

Last Name/First Name _____

Badge Name _____

Affiliation _____

Address _____

City _____ State/Prov _____ Country _____ ZIP/Postal Code_____

Tel. (Include Int'l Code) _____ Fax _____

E-Mail _____

Accompanying Person(s) _____

Registration Fees: (USD)	**Before August 11, 2008**		**After August 11, 2008**	
	Members	Non-members (includes membership)	Members	Non-members (includes membership)
ISCC Annual Meeting and Expert Symposium	$575 _____	$650 _____	$625 _____	$700 _____
ISCC Annual Meeting	$400 _____	$475 _____	$450 _____	$525 _____
Expert Symposium Only	$250 _____		$250 _____	
Students (Copy of valid student ID must be included)				
Annual Meeting	$155 _____		$155 _____	
Expert Symposium	$125 _____		$125 _____	
Accompanying Person(s) Fees (does not include sessions)				
Reception, September 14	$ 25 _____		$ 25 _____	
Awards Luncheon, September 15	$ 35 _____		$ 35 _____	

Total Amount Due (USD) $_____

Cut-off Date for registration: September 4, 2008. No refunds after this date.
On-site registration will be available.

Payment Method (Please print clearly)

_____ Check or money order payable in U.S. Funds on a U.S. Bank to "Inter-Society Color Council"

_____ Charge to the following credit card: ___DISC ___ MC ___ VISA ___ AMEX

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