Inter-Society Color Council *News*

Issue 449 Jan-Feb 2011

Sixth Oxford Conference Scheduled for June 2011

The Inter-Society Color Council announces that the Sixth Oxford Conference on Spectroscopy will be held June 28-30, 2011, at the Rochester Institute of Technology in Rochester, NY. The conference chair is Dr. Art Springsteen. The planned technical program will bring together leading experts in the field of analytical spectroscopy and will include related cultural activities for networking opportunities. The call for papers and other logistic details are on the ISCC web page. See www.iscc.org/meetings/AM2011

The topics will include:

- *Near Infrared*
- *Micro-spectrophotometry*
- *Multi-Angle Spectrophotometry/Color*
- *Raman Spectroscopy*
- *Hyperspectral Imaging*

We hope these will be interesting, cross-disciplinary sessions that should attract a variety of international metrologists to the meeting.

The luncheon Tuesday will serve as the official ISCC Annual Meeting for 2011.

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President's Column

I hope everyone enjoyed their holidays and I would like to wish you a successful and happy 2011.

Planning for our joint meeting with AATCC on April 28-29, 2011 in Charlotte, North Carolina, is progressing very well. The title is "4M Color Management: Multi-Media, Multi-Material Color Control". We all should have had enough of the cold winter weather by then so a trip south should be very welcome!

Plans are also progressing for our annual meeting and "Oxford" conference in Rochester in June 28-30th 2011. Further details on this can be found on our ISCC website. At present it looks like the format of our annual meeting will be changed somewhat in that we will not hold our usual interest group meetings. Your board of directors are planning to send a survey regarding the interest groups and their relevance to you.

The board of directors are also looking at changes to our by-laws to bring them in line with current conditions. Last year we needed to suspend the voting by-law to allow our membership to cast ballots using email. This is just one example where we think updating the by-laws will help us all. There are many other areas needing updating. We will keep our membership appraised of our progress on this.

It looks like 12th November 2011 will be the date for the Special Topics ISCC/CIC joint meeting in San Jose California. The meeting title will be "Revisiting color spaces". This year is the 15th anniversary of the sRGB color space so I am sure it will be well covered.

The board of directors are due to meet in January 2011 by conference call and I will update you on this meeting in the next news letter.

Frank O'Donnell
President, ISCC

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Carl R. Ingling, Ph.D. (1936-2010)

Carl R Ingling, an internationally recognized color vision researcher, passed away on September 11, 2010 after a prolonged illness. Carl was a fellow of the Optical Society of America (OSA) and an honorary member of the Association for Research in Vision and Ophthalmology (ARVO).

Carl earned an undergraduate degree in Physics at Duke University and a Doctorate in Psychology at the University of Rochester, studying color vision under the mentorship of Bob Boynton. In 1968 he joined the faculty of the Biophysics Department at The Ohio State University (OSU), where he was a central member of the University's Institute for Research in Vision. He later moved from Biophysics to the Department of Zoology.

Carl was passionate in his quest to advance our understanding of how the visual system works, and he transmitted that passion to his students. His research efforts were aimed at revealing the relationships between the underlying receptive field structure of single retinal neurons and the mathematical structures of color vision. He developed a highly cited opponent vector model of color vision describing many aspects of vision from threshold performance to suprathreshold appearance. He also made early and significant contributions to our understanding of how the responses of individual cone classes are related to both spatial vision and color vision. During his career Carl trained a cadre of vision scientists who remain active members of the vision science community. Having met Carl at ARVO in 1972, in 1973 I almost pulled up stakes from Syracuse - at a cost of four invested years - to become his student at OSU.

Although Carl was not a member of ISCC, members might be familiar with the following papers he published in *Color Research and Application*: The transformation from cone to channel sensitivities (1982); Test for a correlation between V_λ and the +y opponent channel sensitivity (1990); and Comparison of spectral sensitivity using heterochromatic flicker photometry and an acuity criterion (1992).

Carl had an irrepressible sense of humor. In 1987, at the OSA Topical Meeting on Color in Annapolis, MD, he scrounged a piece of tar from a construction site near the meeting venue, and bestowed it on me at the meeting as the "MacAdam Ellipse Award" to honor my being the creator of the greatest color confusion. Later that year we both went to the Cuernavaca Workshop on Vision, after which we visited Acapulco and he made some profound vision-science observations about why the cliff divers there dive only at night. He was a "silent co-author" in my Talking About Color column on this topic in CR&A [Vol. 14, pp. 227-228 (1989)].

Carl is survived by Mary Craig Powell, his devoted wife of 21 years and by three children and four grandchildren. For more details and a photo, see the OSA obituary in Optics and Photonics News, Dec., 2010, page 58.

Michael H. Brill (with inputs from Bruce A. Drum)

HUE ANGLES

(Send contributions to mbrill@datacolor.com)

Have you ever been a subject in a color-matching experiment? If so, you may have encountered…

The lipstick smudge that betrays color infidelity

The Maxwell spot is an entoptic image of the eye's macula, a yellow-pigmented retinal area extending 3 or so degrees about the center of fixation. Until this year I regarded the Maxwell spot as an arcane effect that I would never see. Reportedly the spot is inconspicuous because it is fixed to the retina and hence the retinal receptors adapt to it. But even with rapid fading of the spot, I still should have seen it transiently in moving my gaze, say, from a blue sky to a white sheet of paper. But that didn't happen. The paper showed me yellow journalism, but never a yellow spot. Ethan Montag [1] gave a demo (alternating blue and yellow field) to show the Maxwell spot---but no guarantees. (Evidently Montag also found it hard to see.) Also, Montag's demo shows the spot as a dark smudge on the blue field or a light smudge on the yellow field. It's still not yellow.

Then, twice in the past year I saw the Maxwell spot, both times in the context of a white light created by three narrowband LEDs. In neither case was the spot yellow. It was rather like a pink lipstick smudge on a white collar---betraying color infidelity by interfering with my ability to match colors. What a nuisance!

I first saw it when looking at a broad white surface in a light box that simulated daylight by mixing LED illumination. Several light mixtures flashed on and off in sequence, and curiously the "three-band lamp" always revealed a pink smudge for a few seconds. Could it be spatial inhomogeneity of the three-band lamp? No, the smudge covered less area when I got closer, and it always was centered about the direction of my gaze.

I saw it again at the latest IS&T/SID Color Imaging Conference. Abhijit Sarkar (a PhD student at Technicolor Research in Rennes, France and University of Nantes) gave what was judged to be the best student paper at the conference, on devising observer categories to reduce observer metamerism. He performed abbreviated color-matching experiments on multiple observers, using two 3-primary displays powered by different primaries. The observer categories he found did not agree well with the age dependency found by earlier investigators. As an on-site demonstration, Sarkar brought a 10-degree matching setup powered by a pair of LED triads, with wavelength peaks (452, 508, 642) nm and (462, 522, 592) nm. I was amazed how difficult it was for me to make the match, because the left-hand semicircle always had a fuzzy pink spot that faded away when I attended to the right-hand semicircle. When I backed away from the apparatus, the left-hand side of the match appeared uniformly purplish-pink. This latter effect had been noted by Sarkar. I thought we were seeing the Maxwell spot, and Mark Fairchild agreed.

Why is the spot called yellow and yet looks pink? Because the macular pigment absorbs strongly in a broad band about 450 nm [1], it would appear yellow when transilluminated by a full-spectrum daylight. When there are gaps in the light spectrum (as with 3-band lamps), attenuation of the green band can enhance the relative weight of the red, hence we see pink.

Not all three-band lamps show the effect, but Sarkar's left-side green wavelength (508 nm) is low enough to be highly absorbed by the macula, leaving the 642-nm red primary to predominate. Because the G primary carries a lot of luminance, lack of that luminance in the Maxwell spot makes the pink darker and enhances my perception of it (relative to the yellow I'd managed to escape all the rest of my life).

Jack Moreland [2] describes a related way to reveal the Maxwell spot: "A large bipartite field (14 deg square) is presented. The two half-fields are approximately matched in colour: the appearance being a near-white. The mixtures are cyan and reddish-orange (490 + 610 nm) on the left, and blue and yellowish-green (460 + 470 nm) on the right […] An observer sees [a] patch about 3 or 4 deg in diameter [that] changes from 'pink on green' (left) to 'green on pink' (right) on switching gaze between the two half-fields." So the Maxwell spot has shown itself to be pink to other eyes before mine.

Together with the best-paper prize, Sarkar now has a new factor to consider in selecting LED primaries. Also, I begin to understand how color-matching subjects must feel when told to "ignore the Maxwell spot." When the spot is lipstick-pink, that task is hard enough to make one consider "cosmetic" surgery.

[1] Ethan Montag, JIMG 774: Vision & Psychophysics, Chapter 8, Part 3: Parts of the eye [http://www.cis.rit.edu/people/faculty/montag/vandplite/pages/chap_8/ch8p3.html]
[2] Jack D. Morehead, Entoptic visualization of macular pigment, *J. Physiol*. **485**, 4P-5P (1995). [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1158020/pdf/jphysiol00321-0007.pdf]

Michael H. Brill
Datacolor

Color Research and Application IN THIS ISSUE, February 2011

It is amazing that it has been over 50 years since the first car painted with metallic-flake pigmented coating was produced, and we still have a great deal to talk about when it comes to gonioapparent coatings. The pigments, which enhance both color changes with viewing angle, highlights, and sparkles, make it very difficult to separate color, texture and other appearance issues. In our first article Niels Dekker, Eric Kirchner, Rianne Supèr, Geert-Jan van den Kieboom, and Roel Gottenbos, all from Akzo Nobel Car Refinishes, talk about "Total appearance differences for metallic and pearlescent materials: contributions from color and texture." From the data in their study they were able to create a total appearance score, which correlates with the measurements of color and texture with multi-angular instrumental measurements of color, coarseness, and glint.

Our next article is a follow-up on work reported in this journal in 2009. In the October issue [Vol. 34: 375-390, 2009] Shizhe Shen and Roy S. Berns developed methods to determine whether a color difference formula was well-fitting, under-fitting, or over-fitting visual data when visual uncertainty was considered. The method selected depended on how the uncertainty was reported and the colorimetric sampling of the color-difference stimuli. In this issue after examining three data sets, they discuss the tradeoffs between the number of color-difference pairs and the number of observations when fitting a local contour of equal perceived color difference. Please read "Color Difference Formula Performance for Several Datasets of Small Color Differences based on Visual Uncertainty" to learn more on this topic and how average standard error could be used to approximate visual uncertainty defined using STRESS.

The Shen - Berns article leads nicely into our next article in that they close their article by suggesting that their techniques could be used to study a single color center with many observers and systematically vary the number of samples. "Development of a Comprehensive Visual Dataset Based on a CIE Blue Color Center: Assessment of Color Difference Formulae" by Seung Geol Lee, Renzo Shamey, David Hinks, and Warren Jasper describes just such a center. After developing their blue data base, they used it to evaluate the performance of CIELAB, CIE94, CMC(l:c), BFD(l:c), and CIEDE2000 color difference formulae.

In the *Journal of Vision* in 2005 [5(11):948-68, 2005] Lindsay T. Sharpe, Andrew Stockman, Wolfgang Jagla and Hebert Jägle published "A luminous efficiency function, V*(λ), for daylight adaptation". However, more recently they recognized that the 25-Hz flickering targets, though near-flicker-threshold, altered the mean chromaticity of the adapting background. So now in this issue, they are presenting "A luminous efficiency function, V*(λ), for daylight adaptation: a correction."

Next we move from a luminous efficiency function to luminance distortion. It is well known that we remember scenes as being brighter than they actually were. But how does this come about? In our next article, "Short-term memory of color sensation is robust against luminance distortion," Tatsuya Yoshizawa, Mika Kubota, and Tetsuo Kawahara report on an investigation of how color signals are treated in the early stages of human memory formation, and whether color information is conserved without interaction of other visual information. They conclude that the chromatic sensation is not modified at the early stages of the human memory system.

Our next article deals with a situation where industry wants you to remember their color, i.e., the color of their logo. Forging a corporate identity is an important task for a new company, and selecting a logo is vital. Zena O'Connor discusses "Logo colour: A new application of environmental colour mapping." As she explains, it is considered important for a new corporate identity design to have an aesthetic footprint that has the capacity to achieve acceptable levels of visual equity and differentiation in a visually crowded marketplace and color is a key element. Her article describes how environmental color mapping database can be examined for patterns of similarity and dissimilarity and the identification of colour solutions aimed at achieving visual equity and differentiation.

Today we often paint our houses and other structures that are open to the environment. Although we think of this practice as adding beauty, it is first and foremost protection from weathering. In earlier times in Portugal, lime washes were used for protection, but this technique was lost over time. In "Colour assays: an inside look into Alentejo traditional limewash paintings and colored lime mortars," Milene Gil Duarte Casal, José Aguiar, Ana Isabel Seruya, RosárioVeiga, Maria Luísa de Carvalho, Helena Vargas, Jose Mirão, and António Candeias compare the various pigments that were used in traditional limewash painting.

Our final article also deals with weathering and protection of building materials. In "Natural Weathering of Oak (Quercus petrae) and Chestnut (Castanea sativa) Coated with Various Finishes" Huseyin Sivrikaya, Harzemsah Hafizoglu, Deniz Aydemir, and Ali Yasav discuss the changes of color and glossiness that occur in several different types of wood both immediately and over time with the use alkyd paints and varnishes.

We close the issue briefly mentioning the new CIE Publication 191:2010 Recommended System for Mesopic Photometry Based on Visual Performance; an announcement of the AIC 2011 Midterm meeting; and a new item about Graduate Programs in Color Science at Rochester Institute of Technology.

Ellen Carter
Editor, Color Research and Application

Member Body News: AATCC Chooses New Officers

RESEARCH TRIANGLE PARK, N.C., USA, Friday, November 12, 2010—The members of AATCC have elected a new President-Elect as well as regional representatives for the Association's 2011 Board of Directors.

In January 2011, current AATCC President Fred Cook of Georgia Tech will step down from his current position to serve as Immediate Past-president for a two-year term. The Association's new President will be R. Michael Tyndall, of Cotton Incorporated. President-elect Peter J. Hauser, of North Carolina State University's College of Textiles, elected this fall, will become AATCC President in 2013.

Chosen in 2008 for a two-year term as President-elect, Mike Tyndall, has been a senior member of AATCC since 1976, and has served the Association both at regional and international levels. On the international level, he has been active in several research and administrative committees. On the regional level, Tyndall has also been an active member of the Northern Piedmont Section and has served as section councilor to the AATCC Council. He has also served on the AATCC Foundation Board of Directors.

Tyndall earned a BS in textile chemistry and masters in textiles from North Carolina State University (NCSU). He also served as an Adjunct Industrial Associate in the Textile Extension and Applied Research department of the College of Textiles at NCSU from 1997 to 2005. He began his career at Cotton Incorporated in 1974, where he is still employed today, as vice-president of product development and implementation. In the course of his duties, Tyndall has traveled globally and has gained extensive knowledge of the worldwide textile industry. He has also written several papers, published in various industry publications, including AATCC's *Textile Chemist and Colorist*. Tyndall has presented at several industry conferences and symposia, including AATCC's International Conference (IC).

When Tyndall begins his Presidency in January of 2011, he will be serving as the 41st president of AATCC since Louis A. Olney of the Lowell Textile School, the founder and first president, began the Association in 1921.

New President-Elect Peter J. Hauser is a professor and director of graduate programs at NCSU's Textile Engineering, Chemistry, & Science department. A member of AATCC since 1977, Hauser has served on the Association's Board of Directors, as chair of the Chemical Applications interest group, and on numerous technical and administrative committees. After receiving his undergraduate and graduate degrees from the department of chemistry at NCSU, Hauser began a career as an industrial research chemist that spanned 24 years and included positions with several textile manufacturers and textile chemical producers. He holds ten US patents in the areas of soil release, flame retardancy, and low pollution dyeing. He has traveled extensively in the United States, Latin America, and China providing technical assistance to textile manufacturers in all areas of textile wet processing. In 1997, Hauser joined the faculty of the College of Textiles at NCSU. He has published numerous papers and is the co-author of *Chemical Finishing of Textiles* published by Woodhead Publishing.

The regional board members elected to new terms on the Board of Directors include:

- Adam R. Varley, Vartest Laboratories Inc., Central Atlantic Region (USA)
- Guddo S. Nadiger, Bombay Textile Research Association, India Region
- Alfred K. F. So, Introtech Ltd., International Region
- Leonard T. Farias, Cotton Incorporated, Midsouth Region (USA)
- Richard A. Malachowski, New England Region (USA)
- Alan Buttenhoff, Shaw Industries Group, Southern Region (USA)
- Susan Matter, Nordstrom, Western Region (USA)

Thanks to the dedicated service of these officers, all volunteers donating their own time, AATCC is able to accomplish its work of test method development, education, and communication that benefits the entire textile and related industries.

ABOUT AATCC: *AATCC is the world's leading not-for-profit association, serving textile professionals since 1921. AATCC, headquartered in Research Triangle Park, N.C., USA, provides test method development, quality control materials, and professional networking for members throughout the world.*

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 each or 20 copies/$50.00

Demystifying Color by Bob Chung, 11 pages.
$5 each 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

Metameric Blacks: A Color Curious Column

Ever wonder ... "what color is the moon?"

Like any other object, the color of the moon depends on how you look at it. Normally we see the moon as one of the brightest objects in the sky and our visual systems see such unrelated stimuli as either white (like a light bulb) or as a bright color (like signal lights). The facts that the moon reflects all wavelengths of light nearly equally and that we see the moon all by itself and cannot compare it to other similarly illuminated objects means that we cannot see it as any other color than nearly white.

However, if we were to take the moon and put it next to other objects under the same direct illumination from the sun, we would have a very different perception. In fact the surface of the moon reflects only about 12% of the light incident upon it. If we were to compare the moon to a white piece of paper we would quickly recognize the moon as a dark gray object. In such situations we are viewing the moon as a related color and we have a more stable perception that is less dependent on the levels and type of illumination. This is illustrated in the composite image constructed based on the measured moon reflectance. A direct image taken by the NASA Galileo probe looks almost the same as this composite.

Another interesting bit of trivia about the color of the moon is that moon dust is retroreflective. That means that, like a road sign, the moon tends to reflect light back in the direction it came from. That explains why the full moon appears fairly uniform in brightness from edge to edge instead of being shaded like a ball would be when illuminated from a single direction (i.e., it looks like a disk, not a sphere).

Content of this column is derived from *The Color Curiosity Shop*, an interactive website allowing curious students from pre-school to grad-school to explore color and perhaps become interested in pursuing a science education along the way. Please send any comments or suggestions on either the column or the webpage to me at <*mdf@cis.rit.edu*> or use the feedback form at <*whyiscolor.org*>.

-Mark D. Fairchild

Upcoming Conferences

AATCC & ISCC April

AATCC and ISCC will jointly sponsor a symposium titled *4M Color Management: Multi-Media, Multi-Material Color Control Symposium*. This two-day program will be held April 28-29, 2011 at the Hilton University Place in Charlotte NC. The program will focus on on-line color control, multi-material color control, developments in digital color management in the supply chain, and color appearance models for multiple substrates.

ISCC members receive a discount, and an early-bird registration fee is in effect. Arrangements and registrations are being handled by AATCC. Please see their web site for program and accommodation details: www.aatcc.org

ISCC/IS&T Special Topics November

In the tradition of the successful ISCC/IS&T Special Topics meetings following CIC13 and CIC16, we are pleased to announce another joint meeting on "Revisiting color spaces". In the year we celebrate the 15th anniversary of the publication of sRGB, this meeting will revisit sRGB and other color spaces and debate the need for expanded sets of color specifications and standards for interchange in the light of the growth of multi-primary, multispectral and HDR imaging. Key topics will include color spaces, color transformations, color image formats, applications, workflows, standards, devices and the implications for color management. A separate registration fee is available for this meeting through www.imaging.org.

Contact: Francisco Imai francisco.imai@gmail.com

Note from the Editor

As you can see from the masthead at right, things have changed a bit with regards to personnel on the Newsletter Team. Mary McKnight has stepped down as the chief architect of the publication. With help from Tek Celikiz and Cynthia Sturke, Mary has done a great job for several years, and from the whole organization we offer a great big Thank You Mary! She has agreed to stay around a bit and help with the transition. (And more than that this month, as she also assembled the calendar.) Also, for his long dedication to the effort, Tek has been awarded the title of Editor Emeritus.

That makes this my very first issue of *ISCC News*, a new challenge for the new year. The Team made the transition as clean and painless as can be expected.

I would also like to prepare everyone for the possibility of changes, in style, format, and maybe more. You can help with suggestions and comments. Everyone involved wants a good newsletter, and I know I can count on you all to work with me to move this forward in a way that enhances the ISCC and all its activities.

Dave Wyble
Editor, ISCC News

ISCC News Issue #449 Jan/Feb 2011

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All submissions must be in English. Please submit materials by the 15th of each even numbered month.

Advertising Policy

The ISCC advertising policy for the ISCC News requires pre-paid color-related advertising 30 days in advance of the publishing date. The rates are:

$100 business card size	$250 ¼ page
$500 ½ page	$1,000 full page

The editor reserves the right to determine the acceptability of the advertising copy. A 20% discount is available for a year-long contract of six issues.

January/February 2011 Calendar

Feb 2-3	**ASTM E12, Color and Appearance,** Baltimore Marriott Waterfront, Baltimore, MD www.astm.org
Mar 22-24	**2011 AATCC International Conference,** American Association of Textile Chemists and Colorists, Charleston, S.C., www.aatcc.org/ic/2011/index.cfm
April 9-12	**NAPIM 2011 Annual Convention,** National Association of Printing Ink Manufacturers, Doral Resort and Spa, Miami, Florida, www.napim.org/publicarea/convention2011/convention2011.aspx
Apr 27-29	**4M Color Management: Multi-Media, Multi-Material Color Control,** ISCC and AATCC Meeting, Hilton Charlotte University Place in Charlotte, North Carolina, www.aatcc.org
May 1-5	**ANTEC 2011,** Hynes Convention Center and Boston Marriott Copley Place Hotel , Boston, MA, www.specad.org/index.php?navid=133
May 1-5	**ASPRS 2011: Ride On The Geospatial Revolution,** ASPRS, Milwaukee, Wisconsin, www.asprs.org/milwaukee2011/
May 4 - 6,	**CORM2011,** NIST, Gaithersburg, Maryland, www.cormusa.org
May 16-19	**Archiving 2011,** IS&T, Salt Lake City, Utah, www.imaging.org/IST/conferences/archiving/
May 15-20	**50th International Symposium, Seminar, and Exhibition,** SID, Los Angeles Convention Center, Los Angeles, CA, www.sid.org/conf/sid2011/sid2011.html
Jun 7-10	**2011 AIC Midterm Meeting, Interaction of Color and Light**, Zurich, Switzerland, Organizer: Pro/colore, www.aic2011.org
Jun 16	**ASTM Special Conference on Retroreflection,** Marriott, Anaheim; Anaheim, CA US, www.astm.org
Jun 22-23	**ASTM E12 on Color and Appearance,** ASTM International Headquarters; West Conshohocken, PA US, www.astm.org
Jun 28-30	Sixth Oxford Conference on Spectroscopy , sponsored by ISCC. Rochester Institute of Technology in Rochester, NY
Sept 23-24	**3rd Annual Conference of the Society for Color and Appearance in Dentistry,** Wyndham Downtown Chicago, www.scadent.org/about-2011-meeting
Nov 7 – 11	**CIC20, Society for Imaging and Technology**, San Jose, California, www.imaging.org/IST/conferences/cic/index.cfm

ISCC Sustaining Members

Sustaining Members of the ISCC are organizations who support the mission and goals of the ISCC through financial or other support. With our Member Bodies, Sustaining Members also provide a critical connection to the color community. If you feel your company or organization should support the ISCC in this way, please contact the office for more information about member benefits.

Avian Technologies	www.aviantechnologies.com	603-526-2420
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Hallmark	www.hallmark.com	816-274-5111
Hewlett-Packard Company	www.hp.com	650-857-6713
Hunter Associates Laboratory, Inc.	www.hunterlab.com	703-471-6870
IsoColor Inc.	www.isocolor.com	201-935-4494
Chester F. Carlson Center for Imaging Science	www.cis.rit.edu	585-475-5944
Xerox Corporation	www.xerox.com	585-422-1282
X-Rite Incorporated	www.xrite.com	616-803-2113

ISCC Member Bodies

At its foundation, the ISCC is composed of many related societies. These societies, our Member Bodies, help the ISCC through small annual dues as well as maintaining a relationship with each organization's individual members. We frequently hold joint meetings to further the technical cross-pollination between the organizations.

If you belong to one of our member body organizations, we encourage you to work with ISCC and your society to further the connection. Contacting the ISCC President is a good place to start. If your organization not on this list and you think it should be, the ISCC office can provide you with details about membership.

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)
Council on Optical Radiation Measurements (CORM)
Detroit Colour Council (DCC)
Gemological Institute of America (GIA)
Graphic Arts Technical Foundation (GATF)
Illumination Engineering Society of N. America (IESNA)
International Color Consortium (ICC)
National Association of Printing Ink Manufacturers (NAPIM)
Optical Society of America (OSA)
The Society for Color and Appearance in Dentistry (SCAD)
Society for Information Display (SID)
Society of Plastics Engineers, Color & Appearance Div. (SPE)
Society for Imaging Science and Technology (IS&T)