



Inter-Society Color Council News

Issue 456

Mar-Apr 2012

Welcome New Sustaining Member: Gamma Scientific

We are pleased to welcome our newest sustaining member, Gamma Scientific! Gamma Scientific (gamma-sci.com) provides a large variety of scientific measurement equipment supporting: spectroradiometry, photometry, LED product development, and much more. Special thanks to president Richard Austin for his initiative and support! I think he would concur that the process was easy, and the rewards will be worthwhile.



In related news, we are in the process of enabling some exciting opportunities for Sustaining Members at our Annual Meeting in June. If you represent a current or potential Sustaining Member contact the General Chairs and see how we can benefit your organization.

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Annual Meeting 2012

June 19-20, Manchester, NH

The plans for the ISCC Annual Meeting are underway. A Call for Papers has been posted on the ISCC website, and is also included in this newsletter. The meeting will be held at the Radisson Hotel Manchester Downtown, near restaurants and other sights. Day one will be a traditional annual meeting with presentations from our three interest groups as well as an education session. On day two we are excited to include sessions on Green Color, meaning the use of environmentally-friendly processes in the creation of color.

Your Interest Groups chairs are actively seeking input on potential presentations for this meeting. Please consider talks you might have seen at other conferences and recommend appropriate ideas to the IG chairs. We do not encourage wholesale recycling of talks, but in many cases an existing talk can be reconfigured with a new spin that meets the needs of our diverse audience in a creative way.

*Deadline for
Abstracts:
April 16, 2012*

Our requirements for submission are flexible; generally abstracts are expected to be 2-5 pages. If you have specific questions regarding your paper, please contact one of the program committee:

- IG 1: Basic and Applied Color Research, contact Ms. Ann Laidlaw, ALaidlaw@XRite.com
- IG2: Industrial Applications, contact Mr. James Roberts, jim.roberts@altanachemie.com
- IG3: Art, Design and Psychology, contact Dr. David Wyble, wyble@cis.rit.edu
- Educational Session, contact Dr. David Wyble
- Environmental Color Session, contact Dr. Romesh Kumar, Romesh.Kumar@clariant.com

The General Co-chairs are Dr. Art Springsteen (arts@aviantechnologies.com) and Mr. John Conant (jconant@aerodyne.com).

For latest info: iscc.org/meetings/AM2012/

ISCC EXECUTIVE OFFICERS

President	<i>Dr. Francis X. O'Donnell</i> The Sherwin Williams Company 610 Canal Road Cleveland, OH 44113 216-515-4810 fax: 216-515-4694 fxodonnell@sherwin.com
Secretary	<i>Ms. Ann Laidlaw</i> Xrite Incorporated 1108 Grecale Street Greensboro NC 27408 USA 616-803-2678 fax: 336-274-1971 ALaidlaw@XRite.com
Treasurer	<i>Dr. C. Cameron Miller</i> Nat'l Inst. of Standards and Technology 100 Bureau Drive, Stop 8442 Gaithersburg, MD 20899 301-845-4767 fax: 301-975-4713 c.miller@nist.gov
President Elect	<i>Mr. Scot R. Fernandez</i> Hallmark Card Inc. 2501 McGee Kansas City MO 64141 USA 816-545-2462 fax: 816-274-7367 sferna2@hallmark.com
Past-President	<i>Dr. Maria Nadal</i> Nat'l Inst. of Standards and Technology 100 Bureau Drive, Stop 8442 Gaithersburg, MD 20899-8442 301-975-4632 fax: 301-869-5700 maria.nadal@nist.gov

ISCC BOARD OF DIRECTORS

2008-2011	Mr. Henri DeBar	IsoColor, Inc. 631 Central Avenue Carlstadt, NJ 07072 201-935-4494 fax: 201-935-9404 hdebar@isocolor.com
	Dr. Michael H. Brill	Datacolor 5 Princess Road Lawrenceville, NJ 08648 USA 609-895-7432 fax: 609-895-7461 mbrill@datacolor.com
	Dr. David Wyble	RIT Munsell Color Science Laboratory 54 Lomb Memorial Dr Rochester, NY 14623-5604 585-475-7310 fax: 585-475-4444 wyble@cis.rit.edu
2009-2012	Mr. Nathan Moroney	Hewlett-Packard Company 1501 Page Mill Road, MS 1160 Palo Alto, CA 94304 650-236-2825 fax: 650-857-4320 n8@hp.com
	Mr. Jim Roberts	BYK-Gardner USA 9104 Guilford Road Columbia, MD 21046 443-838-1935 fax: 301-483-0800 Jim.Roberts@altana.com
	Dr. Leslie Harrington	The Color Association of the US 15 W. 39th Street, Studio 507 New York, NY 10018 212-947-7774 fax: 212-594-6987 lharrington@colorassociation.com
2010-2013	Dr. Nancy Kwallek	UT School of Architecture 1 University Station B7500 Austin TX 78712 USA 512-471-6249 fax: 512-471-0716 n.kwallek@mail.utexas.edu
	Mr. John Conant	Aerodyne Research, Inc. 45 Manning Road Billerica MA 01821-3976 USA 978-663-9500 fax: 978-663-4918 jconant@aerodyne.com
	Dr. Art Springsteen	Avian Technologies LLC P.O. Box 716 Sunapee NH 03782-0716 USA 603-516-2420 fax: 603-526-2729 arts@aviantechnologies.com

ISCC's Online Possibilities

As of this writing our LinkedIn group stands at 167 members, all hoping to interact with the greater color community using these new social media tools. This link will connect you directly to the **LinkedIn** ISCC LinkedIn page: linkd.in/kxTd8G. The ISCC group is ISCC focused on publicizing ISCC people, events, and resources. There are several other color-related groups where you can help promote ISCC events. How about posting a link to the Call for Papers for the 2012 Annual Meeting: www.iscc.org/meetings/AM2012

Also remember that our online presence includes our traditional web page, where you will find an online membership application, and the latest news on upcoming conferences. Please use all of these tools to get (or stay) connected!

12th AIC Congress

The Sage Gateway, July 8-12, 2013

The AIC Congress is held every four years and is the only international color conference that promotes all facets of color.

AIC is a platform where interested individuals, researchers, academics, designers, architects, artists, industrialists, engineers, lighting experts, and business leaders can share ideas, interact, and learn of recent advances in the field.

The main theme of the 2013 conference will be *Bringing Colour to Life*, in the practical sense of color production and reproduction, in the sense of color in nature, and the ways in which color can be used sustainably now and in the future.

For the latest details and information, visit www.aic2013.org or email info@aic2013.org.

I.H. Godlove Manuscript Online:

The Earliest Peoples and Their Colors

Written over the course of decades but never published, this is considered by his family to be a major part of I.H. Godlove's life. In the introduction to the text, son Terry F. Godlove writes: "My father, affectionately known by everyone as I.H., spent his life on the three foundation areas of the Color Council: science, art and industry. In science, he published many journal articles. In art, our family files have many of his sketches, and of course he was an ardent student of the history of color, culminating in this volume."

www.iscc.org/GodloveManuscript.php

HUE ANGLES

(Send contributions to mbrill@datacolor.com)

Don't Try This At Home

Are you impressed by the afterimage studies done by George Brindley [1] in which he stared at an automobile headlight to observe the effects of afterimages? Did you cringe upon discovering that Alfred Yarbus [2] invented a suction cap to attach optical apparatus to his own eye so as to retinally stabilize the images from that apparatus? Then imagine the following exploration done by Isaac Newton and documented in a recent book by Edward Dolnick [3]:

“To see whether the shape of the eyeball had anything to do with how we perceive color, Newton wedged a bodkin—essentially a blunt-ended nail file—under his own eyeball and pressed hard against his eye. ‘I took a bodkin & put it betwixt my eye & ye bone as neare to ye backside of my eye as I could,’ he wrote in his notebook, as if nothing could be more natural, ‘and pressing my eye with ye end of it...there appeared several darke and coloured circles.’ Relentlessly, he followed up his original experiment with one painful variation after another. What happened, he wondered, ‘when I continued to rub my eye with ye point of ye bodkin’? Did it make a difference ‘if I held my eye and ye bodkin still’? In his zeal to learn about light, Newton risked permanent darkness.” (pp. 48-49)

Newton’s adventurous spirit brought great reward. As Dolnick (p. 74) quotes from I. Bernard Cohen, Newton’s 1672 article in the *Transactions of the Royal Society* (reporting that white light contains all the colors of the spectrum) was “the first time that a major scientific discovery was announced in print in a periodical.” Previously, it was believed that publication would adulterate the personal benefit of having an idea.

Newton and his scientific contemporaries were adventurous in their ways of thinking as well as in their daring experiments. In the 17th century, it was adventurous to explore the world with experiment at all, because it was considered somewhat heretical to try to read God’s mind and to question the wisdom of the ancients. Dolnick’s articulate description of how “they were not like us” made me ask: What kind of thinking do we now consider living on the edge?

Some hints come from casual examples. A few writers of physics have the ambitious goal to change the very fabric of reality. That is what I call writing on (as opposed to reading) the mind of God. For example, Hermann Minkowski told the 80th Assembly of German Natural Scientists and Physicians in 1908: “Henceforth space by itself, and time by itself, are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent reality.” Much more recently, two book titles also declared a rewriting of reality: *How I Killed Pluto* (by Mike Brown, 2010) and *The Dreams that Stuff is Made Of* (edited by Stephen Hawking, 2011).

There are trepidations about such hubris. After quoting Minkowski’s famous remark in an introductory chapter to a book on Einstein [4], the anonymous author says in the very next sentence, “Four months later, he [Minkowski] died very prematurely from appendicitis.”

I don’t think Minkowski suffered a divine reprisal, but does adopting his spirit mean we are kidding ourselves? I’ll leave it up to readers of this column to answer the question, “*should we try this at home?*” Meanwhile, I’ll continue trying to figure out why additivity of color matches doesn’t quite work.

Michael H. Brill
Datacolor

1. G. S. Brindley, Two new properties of foveal after-images and a photochemical hypothesis to explain them, *J. Physiol.* **164** (1962), 168-179.
2. A. Yarbus, *Eye Movements and Vision*. New York: Plenum Press, 1967. (Translated from Russian by Basil Haigh. Original Russian edition published in Moscow in 1965.)
3. E. Dolnick, *The Clockwork Universe: Isaac Newton, the Royal Society, and the Birth of the Modern World*. New York, HarperCollins, 2011.
4. *Einstein’s 1912 Manuscript on the Special Theory of Relativity*, George Braziller, Publishers in association with the Edmond J. Safra Philanthropic Foundation, Introduction: Provenance and Description of Einstein’s 1912 Manuscript on the Special Theory of Relativity, p. 18.



Color Research and Application IN THIS ISSUE, April 2012

Peter Nussbaum and Jon Hardeberg open this issue with an article entitled “Print Quality Evaluation and Applied Colour Management in Coldset Offset Newspaper Print.” They generated two custom color management profiles (one using averaged test color measurement data and a second using a data set derived from the difference between measured data and the characterization data. They applied these two custom profiles and the industry standard profile to four test images, which were then printed by the eight newspaper printing presses, and performed a psychophysical experiment to evaluate the resulting images. The results show that the print variations in colors between the printing presses are larger than the difference between the profiles.

We know that there are changes in the perception of color as people age, but perhaps the more important question for designers is whether there is a change in color appearance or people’s reactions to color as they age. In “Age Effects on Colour Emotion, Preference and Harmony” Li-Chen Ou, M. Ronnier Luo, Pei-Li Sun, Neng-Chung Hu, and Hung-Shing Chen report on two experiments (one using single colors and a second using color pairs), which they performed to investigate whether or not the color-emotion responses are different for a group of younger and a group of old observers. Their findings may challenge a number of existing theories, including the adaptation mechanism for retaining consistent perception of color appearance across the lifespan, the modeling of color emotion based on relative color appearance values, and the additive approach to prediction of color-combination emotion.

Over the course of several decades culminating in 1974, members of the Optical Society of America developed the Uniform Color System (called OSA-UCS). Although it has several unique, desirable features, it has never gained much use. Nathan Moroney, Hugh Spencer Fairman, Patrick Chong thought that perhaps the reason people did not adopt the system was because it provided no way to get from OSA-UCS to the CIE system of color notation. Now these same authors have solved that problem, and present the solution in “An Inverse to the OSA-Uniform Color System.”

Over the past few years Alexander Logvinenko has been studying methods to evaluate color

appearance and he has developed a technique called partial hue matching, which allows for measuring color in terms of component hues objectively, without resorting to verbal definitions. (Remember we often describe unique hues with a verbal definition that is somewhat circular, for example, unique blue is a blue that has no red or green in it.) The method aims at establishing the minimal set of component hues while not presupposing their number, and without resorting to verbal categories, and not assuming that they are unique. In the article “A theory of unique hues and colour categories in the human colour vision,” Logvinenko first introduces the partial hue matching approach and then explores some related theoretical issues and describes the relevance of the theory to color categories. He also described the results of a pilot experiment on partial hue-matching, which show the fundamental theoretical notions (such as component hues, and unique hues).

Coincidentally next we have an article on “The Logvinenko Object Color Atlas in Practice.” In 2010, Alexander Logvinenko introduced a new object-color space defining a complete object-color atlas that is invariant to illumination. In the article in this issue, Christoph Godau and Brian Funt present an algorithm that efficiently calculates the required color descriptors for the Logvinenko Object Color Atlas over large data sets and across a wide variety of illuminants. (A Matlab implementation of their algorithm is available online.) Using the algorithm to study the color atlas in more depth, they predict how images change under a change of scene illumination; and to evaluate how changes in illumination and sensor sensitivities affect the mapping from the Munsell to NCS color atlases.

Our next two articles are in the field of architecture. The first article, “Color Composition Features in Modern Architecture” aims to find common characteristics between different chromatic compositional systems in modern architecture in Europe and America. After examining three modern systems: purism, expressionism, and neoplasticism, Juan Serra, Angela Garcia-Codoñer, Ana Torres, and Jorge Llopis conclude that: 1) modern architecture does not use only white, but it does reduce the number of shades, 2) the use of color conforms to shape, but it also transforms it, and (3) color matches not only aesthetics, but also ethical concerns.

continued on next page

CR&A In This Issue continued from previous page

For our next article we move to Asia. In various countries, cities have developed a certain unique look or characteristic based on a color plan. Designers color the exteriors of buildings based on colored patches suggested in an overall color plan for the area. In "Colour scheme supporting technique based on hierarchical scene structure for exterior design of urban scenes in 3D," Seongah Chin proposes a method for developing color schemes for the exterior color design of an urban scene using a three-dimensional simulator. The simulator allows users to develop harmonized coloring schemes for buildings with the automatic selection of a dominant color and sub-colors. He then discusses the results of a user study for validating the proposed scheme. The simulator allows the user to move through the area, zooming in and out to get a more complete color impression.

Our last article in this issue is on "The Influence of Thermal Treatment on Color Responses of Wood Materials." In their study Deniz Aydemir, Gokhan Gunduz, and Seray Ozden from the Faculty of Forestry of Bartın University in Turkey, investigated the influence of thermal treatment on color changes of six different types of wood (juniper, beech, cherry, cyprus, hazelnut, and plane). The darkening of heat-treated woods, make it possible for these thermally treated woods to be substituted for certain tropical hardwoods.

Also from Turkey, Deniz Başbınar Aktekin and Yusuf Şimşek send us a communication concerning "A New Model for Chromotherapy Application." Then we close the issue with an announcement about two new publications from the International Commission on Illumination (CIE): CIE Publ. 200:2011 on the CIE Supplementary System of Photometry and CIE Publ. 197:2011 Proceedings of the 27th Session of the CIE, which was held last year in South Africa.

Ellen Carter

Editor, Color Research and Application

Monitor Calibration: D65 White Point for Soft Proofing

Posted on February 20, 2012 by Parker Plaisted

If you buy a color computer monitor today, connect it to your computer and display a photographic image on it you will probably be happy with the appearance of that image on the monitor. The monitor will use LCD technology and have a native white point near the CIE D65 standard. Right out of the box, with no external calibration, the monitor will display photographic images that look good—not perfect, but good. This is very different from the "out of the box" experience for a color computer monitor 20 years ago.



Let me go back in time to describe a few issues that led to a debate on the "right" white point for monitor calibration and highlight some interesting research from Dr. Mark Fairchild on chromatic adaptation for soft proofing on computer monitors in prepress workflows. The results of Dr. Fairchild's research are also valid for digital photography workflows.

Before we had color computer monitors we had color television sets. The technology that enabled color television was an impressive merger of electrical engineering and color science. In 1953, the National Television System Committee (NTSC) released a standard for color television that included a white point specified as CIE standard illuminant C, which had a correlated color temperature of 6774K. The NTSC standard for television established CIE standard illuminant C as the preferred white point for images viewed on a color television, which was at that time based on cathode ray tube (CRT) technology.

For the rest of this entry: www.color-image.com

Diamond Weevil's Rainbow Bling Really Is Diamond

Published in: *Wired Science*

Like a gem-studded overcoat, the diamond weevil's jet-black wings are covered by pits filled with sparkling, rainbow-colored scales. Researchers have studied these "diamonds" since the weevil's discovery in the early 19th century but, until recently, no one knew how the scales reflected so much light. A new high-tech investigation reveals the diamonds are just that:

crystals of chitin in a diamond-type arrangement optimized to throw off brilliant greens, yellows and oranges. What most people call diamonds are made of carbon, but other materials can take on the same crystal structure, called "diamond cubic."

For the balance of this article see:
wired.com/wiredscience/2011/12/diamond-weevil-rainbow-scales/



Member Body News: AATCC Honors Ann Laidlaw with Chapin Award

RESEARCH TRIANGLE PARK, N.C., USA, February 6, 2012—AATCC will honor Ann Campbell Laidlaw as the 2011 recipient of The Harold C. Chapin Award in recognition for her outstanding service to the Association. Laidlaw will receive the Chapin Scroll at an Awards Luncheon on March 23, 2012, during the Association's 2012 International Conference in Charlotte, N.C., USA.



A member of AATCC since 1979, Ann Laidlaw has served with honor and distinction in the research, education, and outreach functions of the Association. Laidlaw joined AATCC while a student, and continues to influence and promote the mission and vision of the Association through her involvement with color science research, education, and training programs. Laidlaw is an active member of the AATCC research committees, administrative committees, and the Concept 2 Consumer® (C2C) Interest Group, which she chaired for four years. She has served on the AATCC Board of Directors. Laidlaw represents AATCC on the Inter-Society Color Council (ISCC) and she also headed the US delegation for the ISO/TC38/SC1 Meetings held in Paris, France, during July 2010.

Laidlaw has published several articles on color technology in *AATCC Review*, AATCC International Conference proceedings, and served as co-author of the recently published *AATCC Color Guidebook*. Laidlaw has generously served as an ambassador for AATCC in her research and outreach, including presenting and moderating at AATCC workshops, symposia, and the International Conference, as well as for the AATCC webinar series. She also performs outreach to students: serving as master of ceremonies of the AATCC Textile Bowl from its debut in 1999 through 2008, and representing the Association at colleges and universities.

The Chapin Award was established in 1958 in honor of Harold C. Chapin, professor of chemistry at Lowell Textile School, who served as national secretary of AATCC for nearly 25 years. The award is presented each year to a senior member, with at least 20 years continuous membership in AATCC, who has contributed outstanding service, enabling the Association to attain the objectives for which it was founded.

Ann serves as ISCC Secretary. Congratulations!

2012 CORM Annual Meeting: NRCC, Ottawa Canada

The 2012 Annual Meeting of the Council for Optical Radiation Measurements will be held in Ottawa on May 29th to June 1, 2012. The schedule of conference activities will be:



- Tuesday, May 29th : Evening reception
- Wednesday, May 30th
 - AM NRC Session on Current Research
 - Activities at NRC
 - PM NRC Lab Tour (20 minute drive)
- Thursday, May 31st
 - CORM 2012 Conference-Sessions I & II
 - Evening Reception followed by the Franc Grum Memorial Lecture and Banquet
- Friday, June 1st
 - AM CORM 2012 Conference-Sessions III & IV
 - PM CORM Technical Committee Meetings
 - PM CORM BOD Meeting

For more information and conference registration:
www.cormusa.org/CORM2012.html

ISCC News: Seeking Contributions

Or: This is your editor trolling for news

In an effort to stimulate some more folks to contribute interesting articles, I thought I would pose a few questions and see what comes back from you, gentle reader. You don't even have to provide long answers. Interesting responses will be further researched and rounded out to a short article.

My proposed questions, bearing in mind I am looking for color-related answers:

- What piece of technology has been most instrumental in moving your profession forward in the last decade or two?
- Keeping the laws of physics at least partially in mind, what invention would you like to see in the coming years?
- What 20th century journal article had the most impact on color science?
- What artist (of any era) had the best understanding of color science as a whole? Vision, technology, lighting, etc. This one has to be defended a bit.

This particular exercise is for new contributors, or for people we haven't heard from recently. I look forward to your ideas.

Dave Wyble, *Editor*
wyble@cis.rit.edu

Munsell Color Science Laboratory Announces Summer Short Courses

MCSL will again hold two- or three-day short courses this summer on July 5-7, 2012. July 5-6 will be a two-day course on the *Fundamentals of Color Science*. On July 7, participants can choose between *Advanced Topics in Color and Imaging* or *Instrumental-Based Color Matching*.

All courses include continental breakfast, lunch, and handouts, and relevant textbooks. The schedule also allows for plenty of time for conversations with the instructors and other participants.

For details, see www.cis.rit.edu/mcsl/SSC

Boy's and Girl's and Color Preferences

In an article published in *Current Biology*, authors Anya C. Hurlbert and Yazhu Ling find that there are indeed gender-based preferences for color. It is not quite as simple as *all little girls like pink, little boys like blue*. Still, their careful experimentation does show that even across cultures there are clear preferences for hues that are distinct for males and females. One interesting finding is that Chinese and European males nearly agree on their favorite color. However Chinese females prefer a redder color to their European counterparts' green.

The full text of the article is available for free online: tinyurl.com/87cj9o3

Article: The Man Who Hears Colours

Published in: *BBC News Magazine*

Artist Neil Harbisson is completely colour-blind. Here, he explains how a camera attached to his head allows him to hear colour. He writes:

Until I was 11, I didn't know I could only see in shades of grey. I thought I could see colours but that I was confusing them. When I was diagnosed with achromatopsia [a rare vision disorder], it was a bit of a shock but at least we knew what was wrong. Doctors said it was impossible to cure.

When I was 16, I decided to study art. At university I went to a cybernetics lecture by Adam Montandon, a student from Plymouth University, and asked if we

could create something so I could see colour. He came up with a simple device, made up of a webcam, a computer and a pair of headphones and created software that would translate any colour in front of me into a sound.

Read the full article here: tinyurl.com/7867rjz



Calendar

- Apr 2 – 5** **SPECAD ANTEC 2012** Orlando, FL www.specad.org
- May 6 – 9** **IS&T Color in Graphics, Imaging, and Vision**, Amsterdam, the Netherlands
www.imaging.org/ist/conferences/cgiv/
- May 29** **CORM 2012 Annual Technical Conference**, Ottawa, Ontario Canada,
- Jun 1 www.cormusa.org
- Jun 3 – 8** **SID Display Week**, Boston MA. www.sid.org/ConferencesExhibits.aspx
- Jun 5 – 7** **Munsell Color Science Lab Industrial Short Courses**, Rochester, NY.
www.cis.rit.edu/mcsl/SSC
- Jun 13 – 14** **ASTM E12**, ASTM Headquarters, West Conshohocken, PA. www.astm.org
- Jun 19 – 20** **ISCC Annual Meeting**, Manchester, NH. www.iscc.org/meetings/AM2012/
- Sep 22 – 25** **AIC Interim Meeting**, Taipei, Taiwan. "In Color We Live: Color and Environment"
www.aic2012.org
- Sep 26 – 27** **CIE Division 1: Color and Appearance**, Taipei, Taiwan. www.cie.co.at
- Sep 28 – 29** **SCAD Meeting 2012**, W Chicago City Center Hotel, Chicago IL
www.scadent.org/events/chicago-2012
- Jun 13 – 14** **ASTM E12**, Hyatt Regency Riverfront, Jacksonville, FL. www.astm.org

[Thanks to a few dedicated contributors this calendar has additional items! Still, the editor repeats his plea for a Calendar Editor to handle this on a regular basis. What if the ISCC newsletter and web page were known as THE international clearinghouse of color-related events?]

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 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.avianttechnologies.com	603-526-2420
BYK-Gardner USA	www.byk.com/instruments	301-483-6500
Datacolor	www.datacolor.com	609-895-7432
Gamma Scientific	www.gamma-sci.com	800-637-2758
Hallmark	www.hallmark.com	816-274-5111
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
X-Rite Incorporated	www.xrite.com	616-803-2113

Thank You!

ISCC News Issue #456 Mar/Apr 2012

Editor: Dave Wyble

(585)475-7310 wyble@cis.rit.edu

Editor Emeritus: Prof. Gultekin Celikiz

(215)836-5729 gcelikiz@yahoo.com

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 is not on this list and you think it should be, the ISCC office can provide you with details about membership.

Or use our new online application: www.iscc.org/applicationForm.php

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)
 Illumination Engineering Society of North 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 for Imaging Science and Technology (IS&T)
 Society of Plastics Engineers Color and Appearance Division (SPE/CAD)