Inter-Society Color Council *News*

Issue 462 Spring 2013

2013 Annual Meeting Review

The ISCC hosted its 2013 annual meeting on October 16, 2012 in Manchester New Hampshire. The meeting was a traditional ISCC format featuring each of our three Interests Groups IG1 – Fundamental and Applied Research, IG2 – Industrial Application of Color, and IG3 – Art, Design and Psychology, an educational session, and a feature documentary film.

The IG1 session, chaired by Ann Laidlaw, featured four presentations. Robert Carter led off the session with a talk titled *The Incredible Lightness of the Power Law* where the author explored various mathematical techniques to describe the sensation of lightness as related to the models used to explain just-noticeable lightness differences. The second presentation presented by John Conant, titled *Spectral Modeling of Surface Colors in rural Outdoor Environments,* discussed some of the complexities in rendering outdoor scenes in comparison to indoor scenes, particularly identifying the elements that scatter natural light and their relevant physical properties. The third presentation titled *Chromatic Adaptation by Pairs of Illuminant Matrices: A Way Out of the Von Kries Sharpening Dilemma,* by Michael Brill, presented an alternative solution of characterizing chromatic adaptation as a two stage matrix transformation allowing for flexible influence from different illuminants. The final presentation within the group was from Hugh Fairman titled *The Assessment of Uncertainty in Spectrophotometry*, which outlined an emergent ASTM method of quantifying instrument uncertainty.

The IG3 session, chaired by Jim Roberts, featured two presentations, and a feature film. The first paper was *On the Premise, Promise And Complexity Of Color Versatility In Built Environments* presented by Leslie Harrington. The presentation provided a thought provoking discussion assessing our readiness to embark on new paradigms of color versatility in design environments. The second presentation *A Meta-Analysis of Color Effectiveness In Designed Environments*, also presented by Leslie Harrington, outlined how color in built environments has evolved across history, intent, and application. The last portion of this session was a viewing of the documentary *Arc of Light: A Portrait of Anna Campbell Bliss.* The documentary outlined Anna's achievement in color, architecture, mathematics and design. Additional information can be found at http://www.arcoflight.org/.

Over lunch the ISCC enjoyed its business update provide by Frank O'Donnell, and its annual awards ceremony. At that ceremony the ISCC awarded Dr. Rob Buckley with the Nickerson Service Award for several years of serving the ISCC in many capacities including but not limited too BOD, and President. Michael Brill gave the citation for the award, which was fitting, as Rob gave the citation to Michael when he received the award.

The afternoon featured an educational presentation by James Leland titled *De-Mystifying Fluorescent Color,* which presented an insightful overview of bi-spectral measurement methods and modeling in order to characterize the behaviors of fluorescent materials.

The final session of the meeting was our IG2 session, which was chaired by Leslie Harrington,

continued on page 5

Table of Contents

Email: isccoffice@iscc.org *Phone:* (866) 876-4816. *Address: 7820B Wormans Mill Rd. Suite #115, Frederick MD 21701*

ISCC EXECUTIVE OFFICERS

President	*Mr. Scot R. Fernandez* Hallmark Card Inc. 2501 McGee Kansas City MO 64141 USA 816-545-2462 fax: 816-274-7367 sferna2@hallmark.com
Secretary	*Ms. Ann Laidlaw* RoLyn Group 136 E. Hill St Decatur, GA 30030 336-420-1998 acl99colors@yahoo.com
Treasurer	*Dr. C. Cameron Miller* 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	*(vacant)*
Past President	*Dr. Francis X. O'Donnell* The Sherwin Williams Company 610 Canal Road Cleveland, OH 44113 216-515-4810 fax: 216-515-4694 fxodonnell@sherwin.com

ISCC BOARD OF DIRECTORS

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
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 603-526-2420 fax: 603-526-2729 arts@aviantechnologies.com
Dr. Ellen C. Carter	Editor, Color Research and Application 21 Castle Drive Pennsville, NJ 08070 856-678-6444 ellen.carter@alum.rpi.edu
Dr. Michael H. Brill	Datacolor 5 Princess Road Lawrenceville, NJ 08648 USA 609-895-7432 fax:609-895-7461 mbrill@datacolor.com
Dr. Romesh Kumar	Clariant Corporation 74 Elmira Heights Putnam, CT 06260 401-823-2161 fax: 401-823-2750 romesh.kumar@clariant.com

The ISCC Godlove Award

The Godlove Award is the most prestigious award bestowed by the Inter-Society Color Council (ISCC) to honor long-term contributions in the field of color. The Award was established in 1955 in memory of Dr. I. H. Godlove. Usually awarded biannually at the Annual Meeting, the award is now open for nominations on a rolling basis.

Godlove candidates will be judged by their contribution to any field of interest related to color. The candidate's contribution may be direct, it may be in the active practical stimulation of the application of color, or it may be an outstanding dissemination of the knowledge of color by writing or lecturing, based on original contributions. Candidates need not have been active in the affairs of the ISCC, but they must be either current or former ISCC members. All candidates must have at least five (5) years of experience in their particular field.

A Godlove Award Nomination form may be obtained from the ISCC office. The past and present membership of the ISCC boasts a number of individuals deserving of such recognition and this award requires your participation in the process. Please take the time to consider and nominate a worthy candidate for this honor.

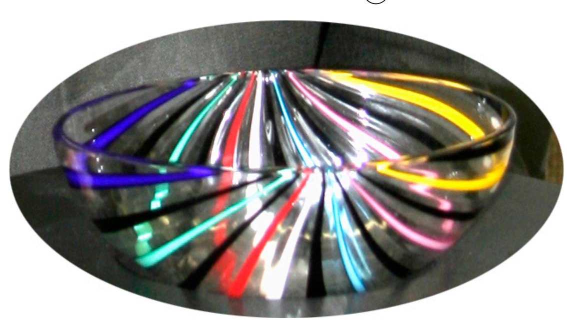
Download: `www.iscc.org/pdf/2102godlove.pdf`

Included in the nomination should be:

1. The nominee's name and contact information.
2. A citation giving in a sentence or two the specific reason for the award's bestowal.
3. A narrative up to one page in length covering the nominee's contribution and its significance.
4. A resume or vita and a publication list for the nominee, as well as any other useful material.
5. Source of the nomination. Give the name and contact information of the person(s) who prepared the nomination.

Note: Confidentiality is of the utmost importance. The nominee should be unaware of the nomination.

Eric Zeise
Godlove Award Chair *eric.zeise@kodak.com*



2014 ISCC NICKERSON AWARD
Call for Nominations

The Nickerson Service Award is presented by the Inter-Society Color Council to honor long term contributions towards the advancement of the Council and its aims and purposes. The contribution may be in the form of organizational, clerical, technical, or other services that benefit the Council and its members. The candidates must be members of the Council and must have been active in the affairs of the Council.

Nominations should include the following information:

1. The name and full address of the nominee.
2. A sentence or two giving the specific reason for the award's bestowal. This will normally form the basis for the citation presented to the successful nominee.
3. A narrative (up to one-page) of the nominee's contribution and its significance.
4. A curriculum vitae and a publication list for the nominee, as well as any other material deemed useful.
5. The name of the person or Member Body or Award Committee who prepared the nomination with appropriate contact information.

Note: Confidentiality of the nomination is of the utmost importance. The nominating individual/group must ensure that the nomination is not disclosed to the proposed nominee. If any of the above information cannot be obtained without risking disclosure, then the information should be omitted from the nominating letter.

Nominations should be sent to the Chair of the Nickerson Service Award Committee:

Ann Laidlaw
acl99colors@yahoo.com
136 E. Hill St
Decatur GA 30030
t +1 336-420-1998

The deadline for receipt of nominations is Nov 15, 2013.

Note: Nominations received after Nov 15, 2013 will be retained for 2015. Nominations for the Nickerson Service Award may be considered to be "open" for submissions at any time. Future Nickerson Service Award committees will review nominations on hand for a given award period.

Roy S. Berns Receives 2013 AIC Judd Award

The 2013 recipient of the AIC Deane B. Judd Award 2013 is Dr. Roy S. Berns.

Dr. Roy S. Berns is the Richard S. Hunter Professor in Color Science, Appearance, and Technology and Director of the Munsell Color Science Laboratory within the Center for Imaging Science at Rochester Institute of Technology, USA. He received B.S. and M.S. degrees in Textiles from the University of California at Davis and a Ph.D. degree in Chemistry from Rensselaer Polytechnic Institute. Berns has received scientific achievement awards from the ISCC, IS&T, and the Colour Group of Great Britain. He is the author of *Billmeyer and Saltzman's Principles of Color Technology, 3rd Ed* as well as over 200 publications. Berns' main research focus is using color and imaging sciences for the visual arts, particularly paintings, including: 3D imaging and computer-graphics rendering; spectral-based imaging, archiving, and reproduction; pigment mapping; visible-fluorescence imaging, colorant selection for inpainting, digital rejuvenation, and image rendering as a function of object and reproduction sizes. This research is collaborative with the Museum of Modern Art, New York; the National Gallery of Art, Washington DC; the J. Paul Getty Museum, and the Van Gogh Museum, Amsterdam. The principal sponsor is the Andrew W. Mellon Foundation.

Joy Turner Luke Receives 2013 ISCC Godlove Award

The Godlove Award is the most prestigious award bestowed by the Inter-Society Color Council, and honors long term contributions in the field of color. This year the honor will go to Joy Turner Luke. Working as an artist for over 50 years, she has participated in many exhibitions, and taught color in composition and design classes. She has authored books and articles, created software, participated in technical committees, and juried exhibitions.

The award will be presented at NIST in Gaithersburg, Maryland, on June 26th during the meeting of ASTM E12, one of ISCC's member bodies. The location is especially fitting because of Joy's a long-time membership in both the ISCC and ASTM International.

HUE ANGLES

(Send contributions to mbrill@datacolor.com)

What the dichromat's eye tells the trichromat's brain

At last February's SPIE Electronic Imaging Symposium in Burlingame, CA, I posed the question, "Can trichromats really know what dichromats see?" I did this as a mini-paper in a session called "The Dark Side of Color" in which the goal is to ask controversial questions but not to answer them. I will re-express my argument here, because Hue Angles is also a place for controversial questions.

One would think trichromats *do* know what dichromats see, judging from several algorithms and software applications that simulate the appearance to a dichromat of any given trichromatic image.[1-4] But my SPIE talk challenged that presumption.

We do know what sets of tristimuli are matches for each kind of dichromat (protanope, deuteranope, or tritanope according to which cone system the dichromat lacks). The confusion loci define parallel lines through tristimulus space. In the central-perspective view that is chromaticity space, the parallel lines converge to a vanishing point, called a copunctal point, that is different for each kind of dichromat.

Although useful, confusion loci and copunctal points don't define how to map the appearance of a dichromatic color on the appearance from a trichromatic space. It is not even necessary for the dichromatic appearance of a light to match the trichromatic appearance of one of the lights on a confusion locus. So how can one make the map?

Formally, the problem is as follows: Find a light **Q** that looks the same to a trichromat as a light **P** looks to a particular dichromat. If you could find a light **Q** for each light **P**, you could present such lights **Q** in an image as a simulation of the dichromat's perception.

One is helped in this task by the theoretical assumption that a dichromat's visual system is the same as a trichromat's, except the dichromat lacks one kind of cones. One replaces the missing-cone input channel with one of the non-missing cone types. At a post-receptoral stage in the model (say, at an opponent-color stage), the theory chooses a channel and then either nulls it or substitutes one of the remaining channels. There are many color-vision models (ranging from Guth's ATD model to CIECAM02), and the above algorithm allows several choices for implementation in each model.

Having chosen a color-vision model and a way to "dichromatize" it, Capilla et al.[2] predict **Q**'s from **P**'s by borrowing the asymmetric-matching idea from chromatic-adaptation studies. They call their approach the "corresponding pair" idea: Map XYZ of light **P** to the dichromat's model output, and then send that model output through the inverse of the trichromat's model to arrive at **Q**.

Using this model structure, Capilla et al. compare images transformed using different color-vision models and "dichromatizing" options. The results are quite diverse, showing the impact of the choice that remains even after the assumed simplifications. Only experiment can decide which choice (if any) is right. What experiment shall that be?

Even the existence of an experiment is problematic. On one level, my SPIE question devolves to the classic philosophical conundrum of my not being able to know if I see the same blue that you do. The situation is saved to some extent by the existence of unilateral dichromats. There the appearance matches between the dichromatic eye and the trichromatic eye promise to be a legitimate "Rosetta Stone." Indeed, unilateral dichromats depose the naïve model of a dichromat's color always having the appearance of one of its confusion aliases in trichromatic vision. But to be trustworthy, color-appearance matches must be made *cetera paribus*---that is, all other variables being equal. The spatial context of a scene always affects the appearance of a color in that scene, and the contexts themselves cannot be equated between a dichromat and a trichromat. You would have to ask the unilateral dichromat to match all the colors in all the possible scenes in your universe to be sure that you had a good simulation. An additional complication is that unilateral dichromats are so rare that we cannot be too fussy about assuring that the trichromatic eye is really "normal." Finally, the colors dichromats see can be as unstable as Gestalt effects like the Necker cube. One dichromat I know reported the following experience: At a distance, red roses look achromatic to him. When he gets nearer to the roses, they suddenly look red. Then, they stay red as he backs away from them, reverting to their previous achromatic appearance only when he looks away from them and back.

continued on next page

Hue Angles continued

In my SPIE talk, I concluded that, if you still want to predict and simulate what dichromats see, you have truly passed…to the Dark Side of Color. Do you agree?

1. H. Brettel, F. Vienot, and J. D. Mollon, Computerized simulation of color appearance for dichromats, J. Opt. Soc. Am. A 14, 2647-2655 (1997).
2. P. Capilla, M. A. Diez-Ajenjo, M. J. Luque and J Malo, Corresponding-pair procedure: a new approach to simulation of dichromatic color perception. J. Opt. Soc. Am A 21, 176-186 (2004).
3. H. Kotera, A study on spectral response for dichromatic vision, Proc. 19th IS&T Color & Imaging Conference, pp. 8-13 (2011).
4. http://www.vischeck.com/daltonize/

Michael H. Brill
Datacolor

2013 Annual Meeting Review, continued

and included three presentations. The first was from Tracy Phillips, titled *50 Years of Coloring the World of Plastics™ History, Pioneers, And Mentors of SPE CAD.* This presentation reviewed the history of the SPE CAD and a few key industry people who were major contributors to the plastics master batch industry or the CAD SPE division during the last 50 years. The second presentation was from Martin Bide titled *Sustainable Color?,* which focused on the needs to shift industries such as textiles and fashion away from oil-based colorants to renewable resources such as the use of synthetic dyes derived from non-fossil feedstock. The final presentation of the meeting, *A Study of Pantone® basic colors in different Pantone® libraries* was presented by Awadhoot Shendye. He outlined metameric issues and resulting color differences that can occur while using the Pantone libraries as a color standards tool.

I would like to thank the interest group chairs Ann Laidlaw, Jim Roberts, Leslie Harrington, and educational committee chair Dave Wyble for all their hard work. In addition I would like to thank our general Co-Chairs Art Springsteen and John Conant for being wonderful hosts and organizers.

Scot Fernandez, *ISCC President*

Color Research and Application

COLOR research and application

IN THIS ISSUE, April 2013

We open this issue with an article on "White lighting." As Mark Rea and Jean Paul Freyssinier explain most practical light sources used to provide illumination to architectural spaces are called white, but upon careful observation of the surfaces in those spaces, the surfaces can still appear to have some subtle hue, or tint. As an object, such as a metal rod, heats up it begins to glow. The color changes from a dull red to yellow to white and eventually toward blue. A graph of this color change is known as the blackbody locus. White lights are often identified by their position along the blackbody locus, called correlated color temperature (CCT). They are identified as "warm" when near the red end, and "cool" when toward the blue end of the locus. In their article Rea and Freyssinier describe the results of a series of psychophysical experiments that more precisely measured subjective perceptions of white illumination from light sources of different CCTs. In general the perception of the whitest illumination follows a line different than the standard blackbody locus, but crossing it.

In a Communication immediately following the White lighting article, Lorne Whitehead adds a comment entitled "Interpretation Concerns Regarding White Light."

In 2009 Alexander Logvinenko published an article proposing a new object-color space. Now in this issue, he examines the "Individual differences in human colour vision as derived from Stiles & Burch 10 degree colour matching functions." The inter-individual differences were surprisingly small. He found that on average such differences do not exceed the differences in object-color appearance induced by an illumination shift from daylight to the fluorescent daylight simulator F1.

In our next article, Paul Centore tells us that CIE XY Z color solid is a zonoid. Hearing this, two questions may immediately come to mind. What is a zonoid? And how does that help us in the case of color science? And Paul answers both questions in the article, "A Zonohedral Approach to Optimal Colours." Not to give away too much, a zonoid is a convex polyhedron that is generated by addition from a set of vectors, and zonohedral techniques can

continued on next page

CR&A In This Issue April 2013, continued

simplify computations: for example, optimal colours can be found without calculating transition wavelengths and zonohedra provide a simple, unified approach to color space, thus eliminating much of the confusion arising from chromaticity diagrams.

With wide-gamut color imaging, color information should be accurately reconstructed from recorded image signals for a broad range of colors. But estimating the color information of spectral images with high overall accuracy becomes difficult because the error becomes relatively large when multiple different colors, especially those with high saturation, are arranged in a small region. In our next article Yuri Murakami, Masahiro Yamaguchi, and Nagaaki Ohyama propose a new spectral imaging scheme that uses two types of data (high spatial-resolution RGB images and low spatial-resolution spectral data measured from the same scene) to obtain information about the colors in an image. The approach uses a dictionary, which contains a number of spectra. The technique in which the estimated spectra are represented by a mixture of a few spectra included in the dictionary, and the color saturation is also preserved for any region is described in "Dictionary-based estimation of spectra for wide-gamut color Imaging."

For our next article we move to the area of special color effects, in this case holographic paper printing. Widely used in food and cosmetics packaging, holographic paper printing produces a smooth shiny paper with holographic effects that reflect and diffract interior and natural lighting. The diffracted light separates into various colors and the reflected light sparkles to create a more eye-catching appearance. But quality control in the production of these papers is difficult, and approval is generally done visually. In "Optimization of Color Measurement Method for Holographic Paper Printing," Xiaoxia Wan, Xinguo Huang, and Zhen Liu report on their studies of why the color measurements of holographic printed papers were difficult and propose a measurement technique that gives consistent repeatable results, thus allowing instrumental quality control.

What we perceive with one sense can be reinforced and supported by input from our other senses. Recently more attention has been given to the inter-support of sensations of smell and sight in the cases of foods and cosmetics. For our final article in this issue, Yu-Jin Kim asks "Can Eyes Smell?" This article discusses the "Cross-modal Correspondences between Color Hue-Tone and Fragrance Family" in the area of perfumes. She describes two experiments with eight commercial perfumes in four typical fragrance families (floral, oriental, fresh, and woody) that involved direct fragrance-color matching and degree-of-similarity judgment between color and fragrance.

We close this issue with Michael Brill reviewing the new book of *Foundations of 3D Computer Graphics* by Steven J. Gortler. If you want to know more about the mathematics related to computer graphics, read this book.

Ellen Carter
Editor, Color Research and Application

Member Body News: CORM

The Council for Optical Radiation Measurements (www.cormusa.org) CORM 2013 Annual Technical Conference and Business Meeting will be held May 7 - 9, 2013 in Gaithersburg, MD.

All technical sessions including the NIST tour will take place at NIST. The Grum Banquet & Lecture will be held at the Holiday Inn, Gaithersburg also serving as the conference host hotel. For more information and registration visit our website at http://www.cormusa.org/

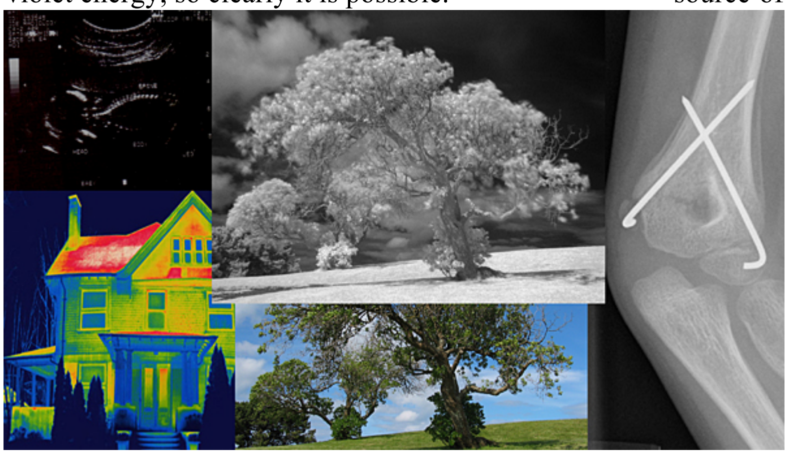
Calendar

June 23-27	**OSA - Imaging Systems and Applications**, Arlington, VA www.osa.org/is/
Jun 26-27	**ASTM E12** meeting at NIST HQ in Gaithersburg, MD
July 5-6	**CIE Division 1 Meeting**, Leeds, United Kingdom
Jul 8-12	**AIC Colour 2013** "Bringing Colour to Life" in Newcastle Gateshead, United Kingdom
Nov 4-8	**IS&T Color Imaging Conference**, Hotel Albuquerque, Albuquerque NM. www.imaging.org/ist/conferences/cic
Dec 5-6	**AATCC Textile Testing Workshop** Research Triangle Park, N.C. aatcc.org/events/workshops/ITT.htm
Dec 12-13	**ASTM E12** meeting at Hyatt Regency Riverfront in Jacksonville FL

Metameric Blacks: A Color Curious Column

Ever wonder ... "Why can we only see visible radiation?"

In a way, the answer is simply a definition. Visible electromagnetic radiation, or light, is defined as the wavelengths that we can directly perceive with our visual systems. The greater question is why our visual systems evolved to respond to those particular wavelengths of electromagnetic radiation when there is such a vast range of wavelengths in the full spectrum. For example, why don't we see X-rays, or radio waves, or ultraviolet energy, or infrared wavelengths? Some insects actually do respond to ultraviolet energy, so clearly it is possible.



There are probably many reasons, functioning in combination, that resulted in our visual systems' functioning the way they do and responding to the range of wavelengths that they do. These include both physiological and ecological reasons. Physiologically, ultraviolet radiation (UV) is potentially very dangerous (and deadly) to biological tissue. Thus it would not serve us well to rely on detection of dangerous radiation to function in day-to-day living. Ultraviolet radiation is sometimes used to kill bacteria and other organisms. It would also damage our cells in a similar way. UV causes sunburn and also contributes to the development of cataracts (opacity) in the lenses of our eyes. Shorter wavelengths have even higher energy levels and can potentially cause more damage and/or pass right through us (like X-rays). So the UV end of the spectrum seems to be a reasonable limiting factor at the short-wavelength end of the visual spectrum. At the longer wavelengths, we have infrared radiation. It turns out that our body produces infrared energy simply because we are warm and that background radiation makes it difficult to detect infrared radiation from the environment (sensors in infrared cameras are cooled to very low temperatures for this reason). Thus visual noise might well be the limiting factor at the long-wavelength end of the spectrum. Even longer wavelengths, like radio-waves are so long that they pass right through (or perhaps more correctly around) us as well and we cannot detect them.

Ecologically, there are other reasons that narrow down the range of wavelengths we respond to visually. For one, the sun's peak energy output is very highly correlated with the wavelengths of light that we respond to. Thus we have a ready and plentiful source of energy to aid our visual perception. Additionally, many of the interesting interactions between electromagnetic energy and the elements and compounds we are made up of (as well as all the plants, animals, and objects we are interested in perceiving) happen in the visible wavelengths. Since the objects we are interested in perceiving modulate visible energy, and the cells we use to detect radiation are made of the same materials (and therefore are readily capable of detecting the light), it only makes logical sense that we would respond to these readily available and interesting wavelengths.

The bottom line is that we respond to the wavelengths we do because it is physiologically plausible for our visual systems to do so and because the information provided by such visual systems is tremendously useful to our survival.

Content of this column is derived from The Color Curiosity Shop, an interactive website, now also available as both English-language and Spanish-language books, 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
Rochester Institute of Technology

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
BYK-Gardner USA	www.byk.com/instruments	301-483-6500
CERAM Research Ltd.	www.ceram.com	+44(0)1782 764428
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
X-Rite Incorporated	www.xrite.com	616-803-2113

We could still use your help!

ISCC has positions in the organization that need filling including Directors and others. We can help identify a place for you depending on your skills and desires. Contact Nomination Chair Frank O'Donnell, fxodonnell@sherwin.com

ISCC News Issue #462, Spring 2013

Editor: Dave Wyble

(585)259-5956 dave@wyble.org

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)