



Inter-Society Color Council News

Issue 469

Winter 2015

Board of Directors Corner John Conant, ISCC President



As I begin my tenure as ISCC President, it is a great pleasure to thank Scot Fernandez for the fine job he's done as president these past two years. Scot of course continues as Past President for the next term, and intends to remain active.

In the 2014 Fall Newsletter, Scot described the progress that the Council has made in the last years. For me, those efforts mean that the Council happily begins this next term in great financial shape (even with a reduction in dues!), and with a strong core of experienced and enthusiastic officers and directors. Nonetheless, we are facing some major problems, most notably a decline in membership (individual and corporate) and in meeting attendance. There are a number of possible reasons for this, including:

- National recessions in recent years, making organizations less willing to support employees' time, travel, and membership costs in societies
- The overall maturation of color science and engineering practice, thus requiring less research and interaction with experts
- The growth of the Internet as an information source

Addressing these problems has led the Directors to reassess the Council's aims and focus.

We have already held two Open Forum discussions on the current status of the Council and on ideas for the future, and I wish to make strategic planning a major goal this year. (Please see the November 12 Open Forum Teleconference Summary on page 2.) Several contributors to the Forums reiterated that they want the Council to remain true to our history as a source of "cross-pollination" between the myriad disciplines which involve Color. I believe that myself. But we must re-look at current art and technology and ask, "what Color-related problems do our members face that we can help with?" For example, that might lead us to focus on education more and on research less. I'd love to hear your opinion!

John Conant
Aerodyne, ISCC President

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Membership Renewal Deadline February 28, 2015!

Many thanks to our Treasurer, Cameron Miller for sending out membership renewal notices!

Please renew your 2015 membership by mailing it in or paying online (www.iscc.org) through PayPal.

The membership renewal deadline is February 28, 2015.

If you do not renew your membership by this date, you will experience an interruption in the receipt of your electronic or hardcopy newsletter.

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November 12 Open Forum Teleconference Summary

We are pleased to report that our second Open Forum Teleconference on November 12, 2014 was a success with 19 participants. First we discussed the actions taken as a result of last year's teleconference. A change in dues and membership structure was instituted. This required a restructuring of the By-Laws to transfer the voice of the organization from the Member Bodies to the Individual Members. The Individual Member dues have been reduced to \$50 and Member Bodies no longer need to pay dues. A Social Media Committee was formed with John Conant as its chair. The Social Media Committee's goal is to support members through online services, the web page and emails. So far this committee has scanned and posted all ISCC newsletters from 1933-2013 on the ISCC website. (The current calendar year newsletters will not be posted because they are for members-only eyes first. So the 2014 newsletters will begin to appear on the website in a controlled roll-out fashion throughout 2015.) This committee also performed a trial web broadcast of the talks given at the ISCC Bridge Session during the Color, Light and Appearance Week held at NIST in June. The presentations from all the Bridge Session talks were posted on the ISCC website immediately following the meeting. Thanks to the Social Media Committee, there will be a Wikipedia page for ISCC. The current emphasis of the Social Media Committee is to promote the ISCC LinkedIn group by using it in new and unique ways and to create a Members-Only section on the ISCC website, where we could include a membership directory among other things. Discussion centered around our need to find a LinkedIn monitor for activity on our website and the need to place ISCC activities and news on other related LinkedIn sites. Now that John Conant is ISCC President, Scot Fernandez has taken over responsibility for chairing the Social Media Committee and following up on the ideas raised at this teleconference.

The open forum portion of this teleconference focused on two topics. The first was: Should we narrow our focus? Can we still serve the needs of the art, science and industrial communities? The following are important issues that our participants raised regarding this important question:

- We should invite artists to our meetings and include art columns in every newsletter.
- It is important to find a way to include more vision science in ISCC activities.

continued on next page

Nov. 12 Teleconference Summary continued

- Let's get back to doing more color education activities, perhaps by encouraging color educator presenters at our meetings.
- Instead of narrowing our focus, how can we refocus our efforts to do things differently than we have been doing them today?
- ISCC should be an integrator body for art, science, industry and education disciplines. But how?
- What can we learn from Member Bodies that contain integrated groups within them like the Society of Color and Appearance in Dentistry?
- First, start a very thoughtful online survey with questions of what ISCC should be like; include non-members. Then create a telephone conference to find a direction. Then hold a focus group including lots of artists and designers, perhaps in NYC.

The second open-forum focus was: Are the aims of the organization still appropriate? Here are some of the important issues raised as we discussed this question:

- If young people don't belong to societies like ISCC, how can we get more of a presence on the internet, especially by search engines?
- How can we make ISCC's name and function more well-known to the color industry?
- Let's thoroughly examine each aim to determine if we are fulfilling that aim and if so, how well? From this, we might be able to determine what we do best and we can then emphasize our strengths.

The discussions were very thought provoking and probably raised more questions than they answered. The Board of Directors is starting strategic planning discussions to address the issues that were raised at this teleconference. If you have ideas that may be helpful, please contact any Board member. ISCC is for you. Please help us make it serve your color needs in the 21st century!



SPE/CAD & ISCC Call for Papers and Participation

The Color and Appearance Division of the Society for Plastics Engineers (SPE/CAD) and the Inter-Society Color Council (ISCC) are jointly presenting a color conference at the SPE/CAD RE-TEC® at the Westin Indianapolis, October 4-6, 2015 in Indianapolis, IN. This event will bring together designers, colorists, color engineers, color scientists and academics from around the world.

This will be the largest international color conference held in the United States in 2015.

The proceedings are an important part of the conference and will be published available to the color community at large. Each submission will be thoroughly peer reviewed and approved by expert members of the organizing committee. Accepted submissions will be available on the SPE/CAD Website after the conference. Abstracts and biographies of the authors/presenters will be available at no cost, prior to the symposium on the SPE/CAD and ISCC websites.

IMPORTANT DEADLINES

- 16 March 2015 –One page abstract, 150-word author biography, author photo due
- 31 May 2015 – Notification of Acceptance
- 1 July 2015 – Final page paper due
- 1 October 2015 Final Presentation due
- 4 to 6 October 2015 Conference

SUBMISSIONS

For additional information or to submit your materials for review and approval send to:

Jack.Ladson@verizon.net or Thomas.Chirayil@basf.com

PRELIMINARY SPEAKERS AND TITLES

Ron Beck, Americhem, *3D printing*

Michael Brill, Datacolor, *What is the shape of a color-tolerance surface?*

Hugh Fairman, Resource III, *Rationalization of the CIE system*

Tad Finnegan, BASF, *The influence of ultraviolet absorbers on the color of plastics*

Danny Rich, Sun Chemical, *Will color engineering ever be a reality?*

Renzo Shamey, NC State, *Supra-threshold small color differences*

Françoise Viénot, Museum National d'History Naturelle, *Colour vision fundamentals.*

SPE/CAD is dedicated to the communication and education in the art & science of coloring plastics.

ISCC is the principal professional society in the field of color in the United States, encompassing the arts, sciences and industry.



May 19 Tue. - 22 Fri.
Ochanomizu sola city Conference Center

The Color Science Association of Japan is hosting the 2015 AIC Midterm Meeting in Tokyo. For more details, please visit <http://aic2015.org/>.

Metameric Blacks: A Color Curious Column

Ever wonder ... "Why is color?"

More typically people ask (and answer) the question, "What is color?" Color is a human perception! But "Why is color?" is far more interesting and difficult to answer. In answering why, one can ponder the reasons we have the perception of color as well as how those perceptions are produced.



This image shows how color perceptions are produced and goes a long way toward explaining why. For example, we could just say that we have color perceptions because our eyes have three cone photoreceptor types that respond to stimuli produced by the interactions of light sources and materials to produce neural signals that our brain can interpret as color.

Looking deeper into the "why" part of the question leads us somewhat out of the domains of the objective sciences of physics, chemistry, anatomy, physiology, psychology and the mathematical language used in all of them. We quickly end up in a more philosophical place. However we don't need to fixate solely on the philosophy. Perhaps the simple answer that color perception makes the world a more beautiful place for us (most of the time) is enough to satisfy the philosophical question. We can then fall back on some biological science to examine the question of why humans evolved to have color perceptions, or even more specifically why they are trichromatic.

The most widely accepted theories on the evolution of color vision are that it serves human survival in three ways. These are to help identify healthy (and willing) mates, to identify healthful and ripe food, and to warn us of potential dangers. Other creatures have evolved, and survive very well, with very different types of visual systems. Some have more than three receptor types (e.g., some birds, fish, insects, and famously the mantis shrimp). Others survive quite well with dichromatic color vision (e.g., most mammals). So the answer is not the same

for all species and that only makes sense. All species don't have wings, or gills, or stingers, or fangs either. What fun would it be if all creatures and visual systems were the same?

Content of this column is derived from *The Color Curiosity Shop*, an interactive website, 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 <mark.fairchild@rit.edu> or use the feedback form at <whyiscolor.org>. This specific topic can be found at <<http://whyiscolor.org/Questions/5-8.html>>.

Mark D. Fairchild

Rochester Institute of Technology

Help Wanted

There are a number of places, small and large, where the ISCC could use some help. This is a great way to help your society and to meet with other members. These jobs do not require much time per month, and many are perfect for new members who want to "get their feet wet".

- Nickerson Award Committee
 - Help to award those who have made long-term service contributions
- Linked-In Group Activist
 - Post news and comments to our online group
- Audio/Video Assistance
 - Help with the audio and video at Council meetings, including online broadcasts
- Historian Committee
 - Help with categorizing and scanning documents, and sharing them with the world
- Art and Design exploration committee
 - We are considering formulation of a special committee to explore how the Council can better support the Art and Design community

For more information, contact the ISCC office at (866) 876-4816 or by email at isccoffice@iscc.org.

A Blast from the Past: ISCC Newsletter 50 Years Ago

Number 174 January – February 1965 on ISCC website

This very informative issue is 23 pages long. It opens with an article about their upcoming 34th Annual Meeting in New York City featuring a day of Problems Subcommittee Meetings and a “Colorants for Industry and Design” symposium, with the very exciting backdrop of the New York City World Fair! Here is a direct quote describing the very lively ISCC Problems Subcommittee meetings and symposia that were the hallmark of ISCC activity in the mid 1960’s:

“Some of the Problems Subcommittees will hold open meetings. There never is a problem in getting people to attend these sessions. Enough controversy remains to occupy ISCCers for at least another year. No one has clearly shown whether this controversy is a tribute to our success in solving problems or an indication of our failure. We only know that sessions are too well attended, and the discussions are lively.”

“Only ISCC brings together so many diverse users, producers, and studiers of color. We use a spectrophotometer, an anomaloscope, and a paint brush with equal skill and ease. Our dexterity is demonstrated in the symposium scheduled for Tuesday, April 27. Manufacturers and designers will tell us what they want in colors. Producers will tell us what we can expect and how they plan to achieve it. In the mid 60’s, we apparently assume that if we can state clearly what we want, someone will probably make it for us.”

Other articles that appear in this newsletter are:

- Isay Balinkin to Receive the Godlove Award
- Color Marketing Group, A New Member Body
- 17 New Individual Members Joined and their particular color interests are listed
- American Society of Industrial Designers and Industrial Designers Institute, both ISCC Member Bodies, merged into a single design society
- Francis Scofield Receives the Armin J. Bruning Award
- Society of Plastics Engineers hold a Regional Technical Conference (RETEC) in Rochester, NY “Coloring of Plastics II”
- Harriet J. Taylor Dies
- Questionnaire on Color Book from Problems Subcommittee 20, Basic Elements of Color Education formed in 1956, and a return envelope distributed with this newsletter
- A Report from The Colour Group of Great Britain
- Dorothy Nickerson Retires (?) from U. S. Department of Agriculture but not from her color avocation – *First on her list of color activities to tackle in her retirement is providing color definitions for a new dictionary*
- International Color Meeting in Lucerne, Switzerland (Jun 1-4, 1965) – *one of the last big international meetings in Europe before formation of AIC in 1967*
- ISCC Pledges \$2,000 (\$500 per year for the next 4 years) to Cooper Union Museum for the Arts of Decoration in New York City – *Henry DuPont wrote to ISCC asking for support to save this museum. If ISCC and other entities would show support for the museum, then the Smithsonian Board of Regents would agree to accept responsibility for the future of the museum including its remaining in New York*
- Rensselaer Polytechnic Institute Offers Short Color Course, “Principles of Color Technology” from Dr. Fred W. Billmeyer, Jr. (June 21-25, 1965)
- Third HunterLab Workshop (Lecture and Laboratory Sessions) on Measurement and Specification of Appearance of Materials (January 11 – 15, 1965)
- Book Review (Fred W. Billmeyer, Jr.) for Colour Measurement In The Textile Industry by Dr. Anni Berger and Dr. Andreas Brockes
- “Physiological Basis of Colorimetry” Professor Yves LeGrand, Couleurs, 1st Quarter, p. 11, 1964 – *translated by Deane B. Judd (3 ½ pages)*
- More on “Op Art” (a word coined by October 23, 1964 Time magazine for “opticolor illusions” or “optical art”) – “a magazine which attempts to reproduce art using high speed magazine press, magazine paper and inks”
(See http://en.wikipedia.org/wiki/Op_art#cite_note-4 and <http://www.jefffreysteale.co.uk/js-cicerone.html>)
- “Survey of Industrial Needs for Measurement of Color” (4 pages) – *submitted by J. M. Adams from The Colour Group of Great Britain*
- “Variables of Perceived Color” by Ralph Evans, JOSA, Vol. 54 No. 12, 1467-74, December 1964 – *sent out as an attachment to this newsletter*
- Center for Visual Science Established at the University of Rochester
- “The Science of Color” – *a color filmstrip and teacher’s manual for chemistry and other general*

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A Blast from the Past continued

- *science vocations*
- List of 10 articles received by this newsletter since publication of the previous one (number 173)

This newsletter closes with the following color cartoon:



Paula J. Alessi, ISCC News Editor

2015 ISCC Godlove Award Celebration

The Inter-Society Color Council presented the 2015 Godlove Award to Anna Campbell Bliss on December 5, 2014. Ellen Carter represented ISCC in Salt Lake City, Utah for an award reception in Anna's honor. The award reception was attended by a gathering of Utah's leading architects, artists, scientists, and historians. Fifty guests enjoyed refreshments, Anna's art, and visiting. For the award ceremony, Anna's assistant, Ben Butler, introduced Ellen Carter, who delivered an excellent presentation introducing the ISCC and their contributions to the field of color connecting science, art and industry. This was the first introduction to the ISCC for many in Salt Lake City and the Intermountain West. The citation was given by Ellen and written by Anna's



good friend, Joy Turner Luke. Here is an excerpt from the citation. "...Anna has a Bachelor of Arts from Wellesley College and a Master of Architecture from Harvard's Graduate School of Design. She studied color theory and design with

Gyorgy Kepes at MIT and with Josef Albers. With this vast educational background, she has had a profound impact on the color and design world through her explorations of the connections between poetry and mathematics, nature and the constructed environment. As she says, "Often the most exciting ideas emerge at the intersection where more than one discipline meets." Anna uses color for its physical properties as well as a vehicle for communicating emotional sensations as she aims to create a unique color experience for each individual. Anna has become a pioneer with computer experimentation to create shapes, colors and patterns that we have never seen in design spaces before. She used computer modeling to design such things as fractals of irregular patterns and structures in nature. ..." (The complete citation appeared in ISCC News Issue 468 page 7.)

Anna thanked the ISCC for the honor they bestowed with the Godlove Award. She also thanked guests for sharing this honored moment with her.

Call for Nickerson Service Award & Rolling Nominations for Others

As most of you know, ISCC has three significant awards that are given out to deserving recipients. The Nickerson Service Award is presented as the occasion arises for outstanding, long-term contributions towards the advancement of the Council and its aims and purposes. This award can be given at any time but no more than once a year. The most recent recipient of the Nickerson Service Award was Cameron Miller in 2014. This is a call for deserving candidates who may be qualified to receive the Nickerson Service Award at our October 2015 meeting in Indianapolis. A candidate's 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. If you would like to nominate someone to receive the Nickerson Service Award, please fill out our common nomination form by clicking <http://www.iscc.org/UniversalNominationForm.pdf>.

Similarly, the Macbeth and Godlove Awards are on a rolling submission process. The next Macbeth Award will be given in 2016 and the next Godlove Award will be given in 2017. This rolling submission process allows us to receive nominations for either the Macbeth or the Godlove Award at any time. So if you wish to nominate a deserving candidate, please fill out the Universal Form at the above link on our website.

Dr. Danny C. Rich to Deliver 2015 Mattiello Lecture at ACA's CoatingsTech Conference

Contact: [Dorothy Brawner](mailto:Dorothy.Brawner@sunchemical.com) Tuesday, December 09, 2014

Washington, D.C., Dec. 10, 2014 — The American Coatings Association (ACA) is pleased to announce that Dr. Danny C. Rich, manager of Sun Chemical Corporation's Color Research Laboratory, will deliver the Mattiello Memorial Lecture at its Coatings Tech Conference, March 9-11, 2015, at the Marriott Louisville Downtown in Louisville, Ky. The CoatingsTech Conference is the coatings industry's leading technical event, and will embrace the

theme, "Innovation! Infrastructure! Efficiency!"



Dr. Rich has managed the Color Research Laboratory at Sun Chemical since 1998, focusing on research and technology assessment in color measurement, color management, and color matching in graphic arts and printing. Prior

to joining Sun Chemical, he worked for Datacolor International, managing its advanced colorimetry and metrology, and developing new technology for color machine vision, coatings, plastics, and ink formulation and instrument metrology.

With nine patents already, Dr. Rich has filed six additional patents on the communication of packaging color and design from conceptualization through converting and characterization of graphic reproduction materials. He has a B.S. in Physics from the University of Idaho, an M.S. in Physics from Virginia Polytechnic Institute & State University, and a Ph.D. in Chemistry (Color Science) from Rensselaer Polytechnic Institute.

Dr. Rich has been recognized with numerous awards and honors. He received the 2012 Printing Industries of America (PIA) Robert F. Reed Technology Medal, as well as the 2008 Technical Achievement Medal from the National Association of Printing Ink Manufacturers. He is also the recipient of a Thomas Alva Edison Award from the Research and Development Council of New Jersey in 2008 for his work on the electronic communication of color data for packaging. The Inter-Society Color Council also presented him with the 1999 Nickerson Service Award.

Belonging to many organizations, Dr. Rich is a member of ACA, the Optical Society of America, Inter-Society Color Council, American Association

of Physics Teachers, the Society for Imaging Science and Technology, ASTM Committee E12 on Color and Appearance, U.S. National Committee of the CIE (International Commission on Illumination), and Illuminating Engineering Society of North America.

More information on the 2015 CoatingsTech Conference, can be found by visiting <http://paint.org/events/coatingstech.html>, or by contacting [Steve Sides](mailto:ssides@paint.org) at ssides@paint.org or (202) 462-6272.

Congratulations Danny! Please consider attending this American Coatings Association to hear our own Dr. Danny Rich give this invited lecture.

Research Fellowship at U or R

The Center for Visual Science at the University of Rochester announces its 2015 Summer Research Fellowship Program in Vision Science. This is an excellent program for outstanding undergraduate students seeking to expand their research experience. The fellowship will cover travel expenses, assist with on-campus housing and provide a **\$3,600** stipend for a summer of continuous training in a faculty member's lab. Deadline is **March 1st**. For more information, please visit:

http://www.cvs.rochester.edu/training/undergraduate/fellowships/cvs_fellowship2015.pdf

A Trip to the Hagley Museum

Last fall (October 9 & 10, 2014) Joy Turner Luke and Paula Alessi took a trip to the Hagley Museum and Library in Wilmington, DE. The Hagley is home to the ISCC artifact collection that used to reside at the Cooper Hewitt Museum in New York City. Also after Dorothy Nickerson passed away,



Joy donated all of Dorothy's color collection to the Hagley. Paula and Joy spent their two days going

through most of the 112 linear feet of the Dorothy Nickerson's collection. Armed with an Epson scanner and a Nikon D90 Digital SLR camera they recorded 667MB of picture information and 240MB of written information stored in PDF format.

Please go to page 11 to enjoy some of the valuable artifacts that were found.

HUE ANGLES

(Send contributions to mbrill@datacolor.com and see <http://hueangles.blogspot.com>)

Once in a while it is educational and fun to hear from the fashion industry, so now CAUS Executive Director Leslie Harrington makes a case for the staying power of a new color trend.

Cobalt Blue - from runway to road

While the business of forecasting new color trends has been more an art than a science since the Color Association first started 100 years ago, it is often hard to validate how “on trend” we have been. Once in a while we see what we might call a “mega” color trend where a color becomes so prolific that it seems to be everywhere. Such past color successes were Wasabi in the late 90’s and most recently char- treuse in the early 2000’s. These colors penetrated all industry sectors but most noticeably in fashion and consumer goods.

Everyone wants to know what the next “mega” color will be: for many, to have the right color in market at the right time means top-line growth. Now, it is crystal clear that the “mega” color will be blue. We have been forecasting blue for the last 5 years, but it is finally hitting its stride, and it is not all blues: specifically it is a deep rich, Cobalt blue.

Today you can find it on the runway. Designers like Ralph & Russo showcase it in their Couture Fall 2014 and Anna Sui in her Ready-to-Wear Spring 2015 collection. In beauty it is most prevalent in nail polish. Leaders such as OPI and Essie both introduced this color in 2013/14, and shadow and eye liners were not far behind as the color gained popularity.



Cobalt blue in fashion (from <http://penelopesoasis.com/wp-content/uploads/2012/08/cobalt-blue.png>).

In consumer goods, it has long been popular in glassware, but we now see it in everything from kitchen appliances to electronics and it was even named Color of the Year by Kelly Moore Paints for 2015.



courtesy of Kelly-Moore Paints

But it doesn’t stop there. Cobalt blue has had its biggest impact on the roads, first seen on pimped-out roadsters, then moving to rims and auto accessories. In 2014/15 it has become the hottest new color. Lamborghini introduced its Asterion LPI 910-4 concept model at the 2014 Paris Auto show in Cobalt blue. Porsche, BMW and Audi are displaying this color at shows. Even Bentley---long known for its classic and conservative silver position---introduced its new Continental GT Supersports in what they call Moroccan Blue, a shocker for many. From Bentley to Honda, all car manufacturers seem to be putting money on blue for 2014-15. Just watch while you are out next time: there is a sea of Cobalt Blue. In all types, makes and models, it is a universal color that seems to have cracked all boundaries.

continued on the next page

Hue Angles continued

While it might not always be called Cobalt, the name doesn't really matter, as you will know it when you see it. And if I have not made my case for Cobalt as the next color darling then let's look at the new campaign for ABSOLUT Vodka - known for its annual unique promotion: the brand has rolled out across all international markets a new artistic edition of four million individually designed bottles [1]—ABSOLUT Cobalt.

1. Yes, four million individually designed bottles. As explained on <http://www.absolut.com/us/Originality/>: "Taking inspiration from traditional Swedish glass crafts, every bottle of Absolut Originality has a drop of cobalt blue infused into its glass. This colouring technique has been used for centuries in hand-made art glass, but never before has it been applied to create four million original bottles. Added just as the molten glass goes into the mould at 1100°C, the drop of cobalt blue streams down inside the glass creating a unique streak of blue. At that temperature the cobalt is invisible, but as the glass cools off, a beautiful and unique blue infusion appears." (M.H.B.)

Leslie Harrington

The Color Association of the United States



IN THIS ISSUE, February 2015

Eric Kirchner opens the first issue of this year by looking back about one thousand years to review "Color theory and color order in Medieval Islam." During the eleventh to fourteenth centuries Islamic scholars made significant contributions to color science, many of which are not commonly known. Kirchner focuses on developments of the understanding of the relationship between light, the medium, and color in color theory and also on the organizing and ordering of colors during that period. In summary, he provides a list of 31 scholars discussed, indicating their time and place of working, also the main works relevant for color theory.

For our next article we jump to something new in color space this century. Dong-Ho Kim proposes "The ULAB Color Space." While strides have been

made in the development of color difference metrics since 1976 when the CIELAB color space and color difference metrics were adopted, in general, the improvements in color difference metrics have been at the cost of losing the associated color space. The proposed ULAB space, while derived from CIELAB, incorporates corrections for lightness, chroma, and hue differences into its color coordinates thus making it possible to have a color space and an associated color difference metric that is much less complicated than CIEDE2000.

The CIECAM02 color-appearance model proposed by CIE Technical Committee (TC) 8-01 Colour appearance modeling for colour management systems has been used successfully in a widening array of applications. However, with the extended use, some weaknesses have been uncovered, and another TC in Division 8 was formed to examine and propose remedies for the challenges discovered. Research relating to these issues has been the topic of several articles in this journal in recent years. In this issue Changjun Li, Changjie Ji, M. Ronnier Luo, Manuel Melgosa, and Michael H. Brill discuss "CAT02 and HPE Triangles." To remind the readers, the chromatic-adaptation transform CAT02 used to move from one set of viewing conditions to another, is embedded in the color appearance model for color management systems described in CIE Publication 159. The HPE triangle refers to the region of color space defined by the Hunt Pointer Estévez cone fundamentals. Two of the challenges recognized have been identified earlier as the Yellow-Blue Problem and the Purple Problem. In the present article the authors explain computation problems of CAT02 and provide methods for solving the Yellow-Blue and Purple problems simultaneously.

Up until now all the applications of CIECAM02 involve comparing how colors change in relation to other colors as the media or lighting conditions change, or for use as a color difference metric...in other words, as the color relates to the colors around it. Unrelated colors are seen as isolated colors, such as red traffic light at night. In another article related to possible applications of CIECAM02, "Color appearance and color connotation models for unrelated colors," Bonseok Koo and Youngshin Kwak report on studies of unrelated colors. First they had observers evaluate color perception of unrelated colors by estimating the magnitude of hue, colorfulness, and brightness, then the observers also gave semantic ratings of each color using Ou's semantic scale, such as heavy-light or tense-relaxed, etc. Using the

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CR&A In This Issue February 2015 continued

the data they then tested three different color emotion models, and new models were proposed for color connotations of unrelated colors.

In our next article, “Influence of lighting conditions on the appearance of typical interior materials,” Ruta Lasauskaite Schüpbach, Markus Reisinger, and Björn Schrader describe two experiments evaluating the effect of different types of lighting on materials in architectural interiors. One explorative study focused on the observers’ preferences, the second study focused on the descriptive aspect of the lights as well as pleasantness. The four light sources used were two light-emitting diodes (LED), a high-intensity discharge (HID) lamp, and a compact fluorescent lamp. They concluded that the light source’s influence on the evaluation of materials needs systematic investigation in future research.

In another article on color preferences, Iris Bakker, Theo van der Voordt, Peter Vink, Jan de Boon, and Conne Bazley examined preferences in color for various items. Understanding these preferences would be important to architects, interior designers, fashion designers and product designers. They examined not only what colors certain people liked, but also why or under what conditions specific colors would be selected, such as being able to focus, or feeling energetic. In “Color preferences for different topics in connection to personal characteristics” they focus on two questions: 1) What are the color preferences of adults and do they differ per topic? and 2) Is there any relationship between color preferences and personal characteristics, in a particular personality? They also note that many people had no color preference at all.

For years, people associate certain colors with specific companies or brands. These colors are often featured in the company’s Logo and are very important to identifying the brand. With the internet and globalization, the number of competing companies has grown exponentially. So the development of a logo and the choice of its colors has become a complex design problem. Christoph Bartneck and Adrian Clark have developed a tool that helps designers analyze large sets of graphics, thus leading to the capability of the designer to make an informed choice about color for their graphics. In “Semi-automatic color analysis for brand logos” they present two case studies which demonstrate the operation of their tools and illustrate the resulting descriptive statistics, and color analysis in relation with socio-economic indicators.

Many forms of graphic and digital design have a

commercial or an educational purpose. It is not sufficient to create the design to be aesthetically-appropriate and visually engaging, but usually it needs to meet a specific communication objective also. Two design elements, color and contrast, play key roles in visual perception, and the strategic use of these elements can contribute to the effectiveness of visual communication. In our next article Zena O’Connor discusses “Colour, contrast and Gestalt theories of perception: The impact on visual communications design.”

Our previous article talked about how color and contrast could improve perception and understanding. Our next article goes in just the opposite direction. Mohammad Khajeh Mehrizi, Fateme Bokaei, and Nasrin Jamshidi want to use color and texture for concealment and making objects blend with natural or artificial backgrounds. This is not unusual in nature, fish and other animals that use related techniques to camouflage themselves and survive. In “Visible- near infrared concealment of cotton/nylon fabrics using colored pigments and multi-walled carbon nanotube particles (MWCNTs)”, the authors report that the presence of MWCNTs in very low concentrations in printing formulations was found to cause considerable decline in near infrared (NIR) reflectance while a surprising increase in visible reflectance of samples was observed. Thus adding MWCNTs to the pigment pastes used for printing could tune the overall reflectance in order to match the standard reflectance profile accepted for use in concealment color of desert areas of dark brown, light brown and olive green.

In our last issue, T. W. Allan Whitfield talked about three men who, through standards, provided a color palette covering the entire built environment of Britain. Now Allan Whitfield and Jianne Whelton close this issue discussing “The arcane roots of colour psychology, chromotherapy, and colour forecasting.” In the article Whitfield and Whelton discuss how the origins of the twentieth century fields of color psychology, chromotherapy, and color forecasting have their basis in the spiritualism, Theosophy and the science of the late eighteenth and nineteenth centuries. They conclude in their article that color is a special dimension and, “given its rich and complex heritage, is likely to remain so.”

Ellen Carter

Editor, Color Research and Application

Meet Your Fellow ISCC Members

Please see p. 7 for article on Dr. Danny C. Rich.

Trip to the Hagley Museum continued

Dorothy Nickerson's original version of her Color Fan is on the left and one of her first mock-ups for the cuboctahedron arrangement for the Optical So-

ciety of America's Uniform Color Space is on the right. These two pictures are only the tip of the iceberg. We are revitalizing the ISCC Historian Committee, whose first job will be to catalog all the Dorothy Nickerson collection information we have gathered from this first trip to the Hagley. As noted in the Help Wanted section on p. 4, we would love to find assistants to accomplish this task so that we can share the information with the ISCC and all of the color world.

For a complete listing of the ISCC collection at the Hagley, visit the Finding Aid at:

<http://findingaids.hagley.org/xtf/view?docId=ead/2188.xml&chunk.id=&toc.depth=1&toc.id=&brand=default>

Calendar

2015

- Feb 9-12** Human, Vision, and Electronic Imaging Conference: Research at the Intersection between Perception/Cognition, Imaging Technologies, and Art, San Francisco Union Square Hilton, <http://hvei.eecs.northwestern.edu/>
- Feb 12** NPES-ICC Color Management Conference, India Expo Center in New Delhi, India <http://whattheythink.com/news/71604-npes-icc-color-management-conference-announced/>
- Mar 2-4** Asia Coat + Ink Show 2015, Bombay Exhibition Centre, Mumbai <http://www.aipima.org/>
- Mar 24-26** AATCC International Conference, Hilton Desoto, Savannah, GA, http://www.aatcc.org/ic/gen_info2015.cfm
- Mar 24-26** 5th IAPR Computational Color Imaging Workshop (CCIW'15), Saint Etienne, France, <http://www.cciw2015.org>
- Apr 18-25** NETInc Conference and PaperCon as part of TAPPI's Centennial Celebration, Atlanta, GA, Info: athomas@tappi.org
- May 7-8** Workshop: Attention & Conscious Perception, York University, Toronto jbeck@yorku.ca
- May 13-15** Computational and Mathematical Models in Vision (MODVIS), Tradewinds Resort, St. Pete Beach, FL, <http://www.conf.purdue.edu/modvis/>
- May 19-22** AIC Midterm Meeting Color and Image, Toyko, Japan, www.aic2015.org
- May 19-22** Archiving 2015, The Getty Center, Los Angeles, CA, Info: archiving@imaging.org
- June 8-12** 23rd Conference on Computer Graphics, Visualization and Computer Vision 2015, Primavera Congress Center, Pilsen, Czech Republic (<http://www.wscg.eu>)
- Jun 24-25** ASTM E12 Color and Appearance, Harbor Beach Marriott, Ft. Lauderdale, FL (D2)
- Jun 28-Jul 3** 28th Session of the CIE, 2015, Manchester, UK, [website coming soon](http://www.cie2015.org)
- July 3-7** International Colour Vision Society (ICVS 2015) Katahira campus, Tohoku University, Sendai, Japan <http://www.vision.riec.tohoku.ac.jp/ICVS2015/>
- July 25-31** Gordon Research Conference on Eye Movements and associated 2015 Gordon Research Seminar on Eye Movements, Bentley University, Waltham MA <http://www.grc.org/chairs.aspx>
- Aug 23-27** 38th European Conference on Visual Perception (ECVP), Liverpool, UK, <http://www.ecvp.org/2015> or ecvp2015info@gmail.com
- August 25-26** Colour and Visual Computing Symposium 2015 (CVCS 2015) Gjøvik, Norway <http://www.colourlab.no/events/cvcs2015>
- Sep 2-4** Computer Analysis of Images and Patterns (CAIP) 2015, Mediterranean Conference Center, Valletta (Malta), <http://caip.eu.org/caip2015/>
- Sep 9-11** The Eye, The Brain, & The Auto International Conference, Dearborn, MI, Info: Carolyn Barth, clbarth@dioeyes.org
- Oct 4-6** SPE/CAD RETEC & ISCC, Show Your Colors, Westin Hotel, Indianapolis, IN, Info: Betty Puckerin, betty.puckerin@ampacet.com
- Oct 19-23** Imaging Science and Technology (IS&T), Color and Imaging Conference CIC 23, Darmstadt, Germany, <http://www.imaging.org/ist/conferences/cic/>

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.avianttechnologies.com	603-526-2420
Datacolor	www.datacolor.com	609-895-7432
Hallmark	www.hallmark.com	816-274-5111
Hunter Associates Laboratory, Inc.	www.hunterlab.com	703-471-6870

We could still use your help!

ISCC has positions in the organization that need filling. We can help identify a place for you depending on your skills and desires. Contact Nomination Chair Scot Fernandez, scot.fernandez@hallmark.com

ISCC News Issue #469, Winter 2015

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ISCC Member Bodies

At its foundation, the ISCC is composed of many related societies. These societies, our Member Bodies, help the ISCC maintain 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)