



Inter-Society Color Council News

Issue 451

May-Jun 2011

Growing Online Community Formed

With the Board of Directors we are excited to see the birth of the ISCC group on LinkedIn. Kindly join us and contribute to the success of our digital community. To join, visit www.iscc.org and click the button that will direct you to the group page. You will need a LinkedIn account.



The ISCC is a leading color society centralizing professional expertise and sharing color interactions with all: inter-connections of color talents and disciplines; reaching out to educate and engage with the public in all fields where color impacts: science, art, history, and industry, for the benefit of the public at large.

In the spirit of these ISCC's core values and goals we invite you to join and promote the ISCC thanks to this new platform. We are looking forward to see all members connected and report the impact and progress as it develops.

Henri Debar, *IsoColor Inc, ISCC Publicity Chair*

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President's Report

Your ISCC Board of Directors met at the end of April in Charlotte North Carolina just prior to the special topics meeting with AATCC. We will be sending out an electronic questionnaire to discover how we can improve and make the ISCC



more meaningful to you. We have chosen this medium as the fastest and easiest way for you to give us your opinions. You should receive an email about this fairly soon. We are also looking at how we can change the bylaws to reflect the way the society is today. We are sorry we had to cancel the June 2011 meeting we were planning. Today's economy is slowly recovering but it is not back to where it was a few years ago. We are still planning a second meeting this year at the end of the CIC 19 conference. This will be a joint ISCC/IS&T meeting. It will held on Saturday November 12th 2011 and be located in San Jose. We expect to have our annual meeting the night before this on Friday 11th November 2011. This will be a dinner meeting.

For those of you who were unable to attend the ISCC/AATCC you missed a very good meeting. The title was 4M Color Management, Multi-Media, Multi-Material Color Control Symposium. For summaries of the excellent presentations, see Ann Laidlaw's report in this issue. With keynote speakers Jim Ferwerda showing us how to envision the material world and Rolf Kuehni discussing quality control of textiles and the paths to move forward you can imagine how good the entire two days were.

Frank O'Donnell, *The Sherwin Williams Company President, ISCC*

Online Membership Applications Now Available for ISCC

www.iscc.org/applicationForm.php

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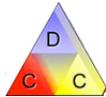
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Member Body News***Detroit Color Council Launches New Website***

The Detroit Colour Council is proud to announce the launch of our newly redesigned website at  DetroitCC.org. The new site has a few advancements over the old one, such as the ability to register for events and sign up for membership at the site, as well as having an easier to read format.

AATCC Offers Textile Testing Workshop for Hands-on Learning

Individuals responsible for product evaluation, specifications, and quality control for apparel and textile materials will benefit from attending the AATCC Introduction to Textile Testing Workshop.

Workshop instructors will discuss and demonstrate AATCC and ASTM procedures for evaluating textiles. Basic color theory and measurement, as well as fiber identification, will be covered. Participants will learn to use the AATCC Gray Scales for Staining and Color Change, the AATCC Chromatic Transference Scale, and Xenon Reference Fabric.

Colorfastness tests to be discussed include crocking, light, washing, and perspiration. Tests for evaluating physical properties include dimensional change, water repellency and resistance, and appearance retention. ASTM test methods, D1424 Tearing Strength of Fabrics by Falling-Pendulum Type; D3512 Random Tumble Pilling Tester Method; and D4966 Abrasion Resistance of Textile Fabrics will also be demonstrated and discussed. The workshop will place emphasis on how to properly conduct and interpret the tests.

Past attendees especially liked the inclusion of both AATCC and ASTM test methods in this program. Limited class size ensures that the workshop remains "well-organized, friendly and informal, with many opportunities to ask detailed questions."

For pricing and details see www.aatcc.org

ISCC Welcomes New Members

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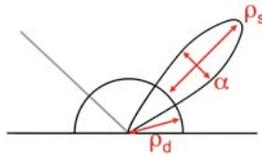
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Meeting Report

ISCC & AATCC Joint Symposium: 4M Color Management: Multi-Media, Multi-Material Color Control

April 28-29, 2011 in Charlotte. The program focused on on-line color control, multi-material color control, developments in digital color management in the supply chain, and color appearance models for multiple substrates. Keynote speakers were renowned color scientists, Rolf G. Kuehni, and Dr. James A. Ferwerda, Associate Professor, Rochester Institute of Technology.

James Ferwerda (RIT), in *Envisioning the Material World*, discussed models of physical properties of materials related to their visual appearances (gloss, lightness, crisp/sharpness).



Rolf Kuehni, in *Color Control of Textiles: Paths to Move Forward*, discussed color difference assessment and the pros and cons of possible paths of improvement, including world-average standard observer.

John Darsey (Color Solutions International), in *Optimum Color Communications*, reviewed color standards in textiles, paper, and plastics.

Renzo Shamey (NC State University), in *Analysis of Variability in Perceptual Assessments of Color*, shared research to elucidate the role and variability of observers in psychophysical assessments of color. A crucial aspect of any visual colorimetry research is determining the needed number of visual observations. This paper highlighted findings from work on the effect of ageing, variations in geographical location and ethnic background of observers, and the role of gender in determining the minimum number of observers required for statistically repeatable results. Determination of the role of observer experience in the assessment of color was also briefly discussed.

Ann Laidlaw (X-Rite Inc.), in *The Future of Lighting: Color, Efficiency, and Compliance*, reviewed current lighting technologies and their impact on color and standardized visual assessments.

Michael Charlton (Sun Chemical Corp.), in *Spot Color Digital Proofing*, presented the possibility of proper proofing of spot colors leading to a more accurate process and spot color hard proof. Ann Laidlaw (X-Rite Inc.), in *Automated Closed-Loop Systems to Control the Color of Extruded Plastics*, filled in for Ken Phillips in presenting a case study of on-line installation for vinyl siding. Examples of



manufacturing problems detected and corrected by the technology were presented.

Bart Meersschaert (EskoArtwork), in *Color for Packaging: Curves, Color Management, and Brand Colors*, reviewed an internal method for managing color for packaging, compared to performance of GRACoL7.

Jeff Budd (Hallmark Cards Inc.), in *G7: Enabling a Global Print Supply Chain*, described Hallmark's adoption of the G7 standardization process to reduce cost and increase speed to market across varied printing modalities. This presentation reviewed the results of applying the G7 process to Flexo, Gravure, and Digital print processes.

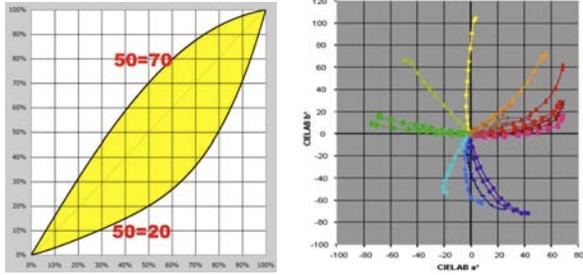
Chris Hipps (Datacolor), in *Tolerable Tolerances: Managing the Complexities of Customized Tolerances*, reviewed an artificial-intelligence method of setting a pass/fail boundary in Datacolor TOOLS[®] software. Hipps briefly reviewed sequencing application for QC.

Andrew Fraser (Chico's FAS), in *Managing Color on Multiple Textile Substrates*, reviewed the need to work with and communicate with a worldwide supply chain to achieve a successful program. He emphasized the need for compliance on standardized lighting and color evaluation procedures. Chico's FAS uses a "visual calibration" program - a set of color difference samples sent to assessors to train on acceptability thresholds.

Michael Charlton (Sun Chemical Corp.), in *Palette Rationalization*, reviewed reasons for palette proliferation, as well as ways to rationalize to a more manageable palette.

Reid Clonts (North Carolina State University), in *Blackness Index*, presented research on blackness preference research using textile samples of varying chroma and hue. Hues 200-270° perceived to be blackest, regardless of C*. Hues 315-45° were perceived as least black. It is interesting that bluish hues are visually preferred for blacks, as they are for whites.

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Scot Fernandez (Hallmark Cards Inc.), in *The "Green" Evaluation of Hallmark's Color Reproduction System*, reviewed Hallmark's workflow using soft-proofing to reduce time and resources for developing and approving color.

Kerry King ([TC]2), in *Digital Textile Printing and the Question of Color*, reviewed digital textile printing systems involving variables such as printer hardware, software, ink chemistry, and fabric type, preparation and finishing procedure. King highlighted significant variables and described workflow strategies and challenges for optimizing color from a practical perspective.

Carly Morrison (Cotton Inc.), in *Variables Influencing Color Reproducibility in Digital Printing*, reviewed variables that can influence color reproduction in digital textile printing, including pretreatment, substrate, ink set, steam quality and after-washing.

Danny C. Rich (Sun Chemical Corp.), in *Digital Proofing of SPOT Color Packaging Inks Using a Desktop Inkjet Printer*, described a standard EPSON office inkjet printer that was set up to print customer colored inks. Computer-aided colorant formulation software was used to develop a series of inter-mix inkjet inks and then predict blends of the base inks to match SPOT colors, such as Pantone® Matching System swatches. The combination of the RIP software and the colorant formulation software made it possible to create digital proofs of spot colors with an accuracy equal to that of production packaging inks at a much lower cost.

The Joint Symposium concluded with a lunch gathering for all attendees. Participants from varied industries made valuable connections with new peers and renewed existing friendships. We look forward to the next such opportunity at the ISCC Annual Meeting (Nov 11) and Special Topics Meeting on sRGB (Nov 12) in San Jose (following the Color Imaging Conference Nov 7-11). See you there!

Ann Laidlaw, X-Rite Inc.

ISCC Website Upgrade!

You can now apply for ISCC membership on line via our new application form found at:
www.iscc.org/applicationForm.php

For credit card payment we use a secure site at PayPal.com.



You do not need a PayPal account to make the payment. In the future we will use this feature to handle meeting registrations and purchases. Note that payments can still be made directly made through the ISCC office.

Member News

Nancy Kwallek Received CIDA Award

ISCC Board of Directors Member, Dr. Nancy Kwallek, is the recipient of the Innovative Interior Design Education Merit Award for "An Innovative Approach in Teaching Color to First-Year University Students," from the Council for Interior Design Accreditation (CIDA) for excellence in Interior Design Education. The Innovative Education merit award included a multi-cultural approach to study color by utilizing the Mandala of eastern cultures - by using produce. The food, artistically arranged in the image below, was donated later to the Central Texas Food Bank. The project fulfilled the university's request for faculty to incorporate a community service activity into their classes.

Congratulations Nancy!



Scientists See the One-Way Light

(*Science News*) Normally, a glass window doesn't care where a ray of light came from. But special kinds of glass or plastic could be a bit pickier. Nonlinear materials could distinguish between two rays of light coming from opposite directions. Blocking a ray from one direction and allowing in a ray from the other could be useful for making a one-way street for light. Textbook optics say that a beam of light coming from the left will pass through and reflect off a material in the same way as a beam of light coming from the right. But nonlinear materials, which can change as light passes through them, play by different rules.

HUE ANGLES

(Send contributions to mbrill@datacolor.com)

What a difference a century makes, and 134 years even more so...

Health effects of blue light

The year 1877 marked the peak of a craze to use light transmitted through blue glass to enhance crop growth and to heal animals and humans of all kinds of ills. The originator of the craze was Augustus J. Pleasonton---a Civil War general, amateur naturalist, and arguably the father of the color-healing movement that survives today. Pleasonton is featured in Chapter 11 of Paul Collins's book, *Banvard's Folly: Thirteen Tales of Renowned Obscurity, Famous Anonymity, and Rotten Luck* (New York: Picador, 2001). Collins compassionately chronicles several "brilliant but fatally flawed thinkers," most from the late 19th century in the U.S. The frontispiece by Walt Whitman summarizes Collins's sympathy: "Battles are lost in the same spirit in which they are won."

Unlike some of his later imitators, Pleasonton strongly believed in his cause. His intellectual inspiration came from Robert Hunt's 1844 *Researches on Light*. (No known relation to our Robert Hunt.) Pleasonton conducted several well-intentioned but ill-controlled experiments with grapevines, pigs, and even human subjects. He also published a book (on blue paper, of course) that purported some theoretical underpinnings. One passage quoted by Collins begins, "Our sun is simply a huge reflector of light," and goes downhill from there. In 1871, after a home visit from a patent examiner and a month of waiting, Pleasonton obtained a US Patent (US 119,242). The first claim was as follows: "The method herein described for utilizing the natural light of the sun transmitted through clear glass, and the blue or electric solar rays transmitted through blue, purple, or violet-colored glass, or its equivalent, in the propagation and growth of plants and animals, substantially as herein set forth." After a few years, Pleasonton became shocked at the quackery and nonsense whose spread he had begun, and tried but failed to enforce his patent. Modern patent attorneys would cite "laches,"* but I would make the broader attribution to the whole barn door being open...

Of course, not everyone was buying blue glass as a cure-all. Satire abounded. For example, John Carboy's book satirizing the craze gave the helpful hint: "Square pieces of blue glass weighing six pounds each may be used for dispersing a cluster of tom cats."

At the peak of the craze, the *Scientific American* finally cried foul and, in 1877, published many articles (sometimes more than one in the same issue) to discredit Pleasonton. The most cogent comment was that sunlight through blue glass actually contains *less* blue light than unfiltered sunlight, and so blue light itself could not be the agent of the observed cures.

Fast-forward 134 years. How much has changed! Patent office actions don't take just a month or two, but five years as we grow old and companies rise and fall. Not only is blue light not a healer, but it actually can cause injury to the eye's photopigment [1]. If it betokens ultraviolet components, these components pose an injury threat to the cornea and lens of the eye [2]. In lesser doses, a blue light can also produce a dissonance between the eye's papillary and focus reactions, resulting in eyestrain. Blue light can also encourage wakefulness, because the eye has a special melanopsin receptor in the blue region of the spectrum [3]. This last may or may not be healthy depending on how late you stay up in front of your blue computer screen.

But one thing that hasn't changed is the rule of logic. In view of the new knowledge, one finds that the 1877 *Scientific American* argument is not as effective as it first appears. Certainly absolute blue-light doses may be quantitatively associated with eye injuries, but the ergonomic problems of eyestrain and wakefulness rely more on imbalances of receptor inputs, which also manifest in---you guessed it---color perception. Accordingly, finer critical tools are needed to assess cause and effect than the notion of a "dose" of light. Besides mentioning the need for controlled experiments, I will not try to teach any of these arguments, but will defer to the work of, e.g., ISCC member George Brainard.

In any event, I recommend Collins's book for much more than just the Pleasonton article. Try the article that gave its title to the book: Banvard's folly, a three-mile long painting of the shore of the Mississippi River, scrolled past viewers between two rollers. It was world-famous in its own time, unknown in ours. How many of our own names or works will survive 134 years?

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References

1. International Non-Ionizing Radiation Committee of the International Radiation Protection Association, Guidelines on limits of exposure to ultraviolet radiation of wavelengths between 180 nm and 400 nm (incoherent optical radiation), *Health Physics* **87** (2), 177-186 (2004).
2. www.sunnexbiotech.com/therapist/main.htm and see primary research references therein.
3. S. W. Lockley, Spectral sensitivity of circadian, neuroendocrine, and neurobehavioral effects of light, *J. Human-Environmental System* **11**, 43-49 (2008)

*Note: "Laches" means undue delay in asserting a legal right; "latches" are part of a barn door.

Michael H. Brill, *Datacolor*

Inaugural Meeting of the Canadian Colour Research Association

You are invited to the inaugural meeting of a new Canadian Colour Association as a chapter of the AIC[‡] (*Association Internationale de la Couleur*). This is an open call to all artist/designers, scientists, academics, educators, students or other individuals who have an academic or professional interest in the subject.

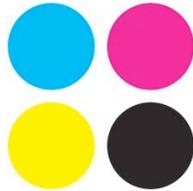
We are hosting a meeting at OCAD University in Toronto on June 1, 2011 with possible Skype connections to a number of regional locations (TBA). If you are interested in hosting a regional meeting with a Skype connection to the OCADU meeting, please let us know. This general meeting will discuss the establishment of the organization, membership, structure, mission statement and will elect officers.

Keynote speaker Jennifer A. Veitch, Ph.D. from the National Research Council will open the event with a talk entitled, "Contemporary Issues Concerning Colour and Well-being".

Check our info page on the OCADU website: www.ocad.ca. for further information and updates. Pre-registration will be available at this link shortly.

ISCC congratulates our Canadian colleagues on this momentous occasion!

[‡] Note the ISCC is the US representative to AIC.



Elizabeth Hunter, 1913-2011

Members of the ISCC were saddened to hear of the passing of longtime friend and supporter Mrs. Elizabeth Hunter. Mrs. Hunter ran international sales for Hunter Associates Laboratory in Reston, Virginia from 1965 until 1995. She died March 16 at Sunrise Assisted Living in McLean, VA. In 1952, Mrs. Hunter helped her husband found Hunter Associates Laboratory, which manufactured optical electronic instruments. She was an office manager before becoming director of international sales.

Our thoughts and prayers go out to the Hunter family during this difficult time. We will publish a more complete obituary in a future issue.

Sustaining Member News

Color seminar Series: Practical Color Theory for Business and Industry

Datacolor announced today a series of upcoming color seminars, "Practical Color Theory for Business and Industry," designed to offer an introduction to color science and technology. By combining color theory with real-world application, seminar attendees will gain a reliable foundation of winning strategies to manage color processes.

Hosted by Ken Thomas, Senior Applications Specialist, the color seminar will use interactive examples and discussion in a straight-forward language that will help attendees learn the principles of color perception and measurement; discover dependable techniques for efficient color communication and evaluation; and develop confidence to comfortably use color data in daily decisions. A color educator and advisor in color processes for users and specifiers of color technology for more than 25 years, Thomas will discuss how to implement best practices in color processes. For details see: www.datacolor.com

Color Quiz

Novelty light bulbs come in several colors. What two common color names will you never see in a light bulb?

Email your answers to the editor. At his discretion correct or interesting answers will receive fabulous prizes, or a mention in the next *ISCC News*.



Color Research and Application IN THIS ISSUE, June 2011

In recent years scientists and people from industry are increasingly using statistical evaluations of the measurements they have made. This is especially true in the Standard Test Methods developed by ASTM International. When the measurements are for the purpose of evaluating the color of materials the statistics are not as straightforward as say measuring the concentration of a chemical. First of all, the basic measurement of color usually is calculated from the measurement of the reflectance factor over the wavelengths in the visible region of the spectrum. Tristimulus values are calculated from the spectral data, and for evaluation this data is further reduced to a single number such as a color difference. But color differences are not normally distributed and therefore need special attention to the statistical analysis. In our first article, "Statistical Methods for Analyzing Color Difference Distributions," Maria Nadal, Cameron Miller and Hugh Fairman compare five statistical methods to determine the 95 % tolerance limit on nine data sets of color differences. They concluded the resampling method was the best approach based on its robustness and simplicity.

Our next article also deals with a significant issue in the measurement of color. The measurement of the color of flat diffusely-scattering materials is the mainstay of color quality control in industry. But more and more, materials have high gloss or special effects that cause their appearance to be very different depending on the angle of illumination and view. The materials require bidirectional reflectance factor measurements, commonly called BRDF measurements. Lionel Simonot, Mathieu Hébert, and Damien Dupraz propose a way to cope with such objects and to represent their angle-dependent colors in a colorimetric space by adapting CIELAB color space to "goniolorimetric" measurements. In "Goniolorimetry: from measurement to representation in the CIELAB color space" they describe their study of BRDF measurements at various cone angle sizes and introduce a goniolorimetric space for color specification.

For our third article related to the measurement of color and quality control we move to the textile industry. Most analytical techniques for recipe

prediction and color adjustment has been based on some form the Kubelka-Munk calculations. However, in "Colour prediction of a carded cloth composed by different kind of differently coloured raw materials: an artificial Neural Network based approach," Roco Furferi and Lapo Governi have proposed and validated a new technique based on neural network for control of color on cloth using carded fibers.

Next we move to three articles relating to color appearance. In the first article, Kevin Smet, Wouter R. Ryckaert, Michael Pointer, Geert Deconinck, and Peter Hanselaer discuss the "Colour Appearance Rating of Familiar Real Objects." In 1965 the International Commission on Illumination (CIE) proposed a method for testing the color rendering qualities of various light sources. However, with the advent of much narrower band sources, such as those using light-emitting diodes (LEDs) the issue has come under new scrutiny. In their research, the authors have compared the results of color appearance assessments of a set of nine familiar real objects with respect to observer memory color. These experiments provide quantitative data of color appearance ratings of objects referenced to the memory color of the object. The distributions associated with these nine objects should be useful in developing a new metric for the assessment of the color rendering capabilities of a light source. In the analysis of the results, the orientation and shape of the distribution suggest that observers are more tolerant for deviations in chroma than hue.

In "Investigation of colour size effect for colour appearance assessment," Xiao, M. Ronnier Luo, Changjun Li, and Du-Sik Park report on a series of experiments. In this study, the color appearance of test stimuli ranging from 2 degrees to 50 degrees in field sizes based on two different media were assessed by psychophysical experiments. The results showed a consistent pattern of color appearance shift due to the stimulus size. The larger the size difference the more pronounced is the effect. When color size increases, colors would appear lighter and more colorful, but the hue does not change.

In the past several years this journal has published several articles on studies of the emotional response to color. However, generally

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these studies have used colored single patches or simple pairs or triads of colors. In our next article, "Color Emotions for Multi-Colored Images" Martin Solli and Reiner Lenz report on their investigations of emotional responses to color in ordinary colored images. They asked observers to rate images on three parameters: activity, weight, and heat. They found that generally observers perceive the emotions evoked by the images in similar ways and that the observers' judgments are highly correlated with the predictive model recently proposed in image retrieval. The study presented here is the first step towards a broader use of emotion-related properties in Content Based Image Retrieval. The authors plan future research focusing on the inclusion of additional emotion properties, and dealing with the question of how to communicate efficiently those properties in a user interface for image indexing and retrieval.

Our next article deals with the colour in cityscape, architecture, and archeology. In this article Emilia Rabuini and Maria de Mattiello explore the chromatic reconstruction of the La Boca neighborhood of Buenos Aires, Argentina by examining the influence of the Italian settlement of this area and the pigments used in house painting by the residents resulting in a uniquely colored and colorful style. In "Colours in La Boca: Patrimonial identity in the urban landscape" Rabuini and de Mattiello's conclusions highlight the importance of preserving historically significant areas and thus the nation's heritage in this time of world-wide globalization.

Also in this issue, Zena O'Connor contributes to our Color Forum. The Color Forum is a section of the journal where articles authors can introduce topics, present opinions and stimulate discussion on possibly controversial topics. This topic in this issue is "Colour psychology and colour therapy: Caveat emptor." In her article Dr. O'Connor points to the many sources of information about color psychology and color therapy in popular culture include mainstream magazines, online magazines, and Internet websites. While there have been many of the recent studies that focus on psychological, physiological, and behavioral responses to color that are scientifically rigorous, but their results may be quoted by others to suggest uses not founded in the research. Too often popular sources over generalize or use out of date materials that can lead to erroneous conclusions. She cites many examples of both good and bad, and concludes with seven reasons for the reader to

beware.

We close this issue with Esther Perales, Francisco M. Martínez-Verdú, Manuel Melgosa and Francisco J. Heredia reporting on the 9th Spanish Color Conference held in Alicante, Spain during the summer of 2010. Two new CIE Publications: CIE 192:2010 on Practical Daylight Sources for Colorimetry and CIE x036:2010 - Proceedings of the Expert Symposium on Spectral and Imaging Methods for Photometry and Radiometry are described briefly. Also there is an announcement about the Munsell Color Science Laboratory's Industrial Short Courses to be held in June of 2011.

Ellen Carter

Editor Color Research and Application

Member Body News

CAUS announces Women's Fashion Forecast

What's behind The Color Association's Fall/Winter 2012-2013 Fashion Forecast for Women? According to Executive Director Leslie Harrington, Ph.D., "A new frugality is on the rise, translating to fashion with a move toward quality-focused garments and longer-wearing apparel. Colors remain fairly safe, with bright and provocative stories reserved for accessories, such as scarves, handbags, or shoes". The 2012-2013 Women's Forecast explores the color process through time and nature. The palettes on this Forecast, selected by CAUS's Women's Fashion Committee, focus on four different themes:

TRANSFORMATION focuses on decline and evolution, recognizing great character in the non-ephemeral with a story and history behind it. Look for grayed-off hues such as "Aged" and "Verdigris". HIGH TOUCH surveys the interaction between people and their gadgets. Silver grays, from light to dark, form this palette's foundation. With a proven digital track record, blue dominates the story, with the vibrant shades of "Bluetooth" and "Electric".

ABSURD is carefree, fun, and spontaneous, reminding us that not everything has to have a deeper meaning. An incredible story for prints, with pattern mixing highly encouraged.

BUFFET surrounds the notion of social interaction and the growing interdependence of food and fashion. Warm and bright "Persimmon" and "Starfruit" pop against "Custard" and "Dialogue".

TOUR takes the high road, throwing caution to the wind and inviting luxury in. Rich, heritage colors, such as "Country Road", "HRH", or Her Royal Highness, and "Racing Green" are best executed in high quality fabrics such as velvet, cashmere, and corduroy.

Member Body News

Norma Keyes and Roland Connelly earn AATCC service awards

AATCC honored Roland Connelly and Norma Keyes with its Technical Committee on Research (TCR) Service Award in recognition for their outstanding service in test method development for the Association.

The Award consists of a plaque and a US\$500 honorarium, and was presented to Connelly and Keyes at the AATCC International Conference this past March in Charleston, S.C., USA.

Connelly was specifically noted for the development and execution of AATCC UV Calibration Program and Evaluation Procedure 11. Keyes was cited for her work in the development of the Liquid Moisture Management Test Method and the Moisture Management Technical Supplement.

Roland Connelly has been a member of AATCC since 1970. He has served as AATCC president and is a recipient of the Chapin Award for his exemplary service to the Association. He serves on the AATCC Board of Directors and on the board of the AATCC Foundation. He has volunteered on or chaired a number of technical and administrative committees, including: DELETE COMMITTEES the Concept 2 Consumer® interest group, the Executive Committee on Research, the Technical Committee on Research, the committee for ISO TC 38, the Buildings and Grounds committee, the Appropriations committee, the Committee on Conferences, the Education Advisory Board, the Publications committee, the Subjects and Speakers Bureau, the International Test Methods committee, the Membership committee, the Constitution & Bylaws committee, the Olney Medal Award committee, the Henry E. Millson Award for Invention committee, the Textile Education committee, the Harold C. Chapin Award committee, the Global Interaction committee, the Committee on Awards and Scholarships, the Assessment of Dye Strength and Shade Test Methods committee, and the Color Measurement Test Methods committee. Connelly has also presented numerous times at AATCC International Conferences and symposia, as

Congratulations!

well as at AATCC Color Workshops.

Norma Keyes has been a member of AATCC since 1971 and is a Life Member. She is a Chapin Award recipient for outstanding service to the

Association. Keyes has volunteered on or chaired a number of technical committees, including: the Executive Committee on Research and the Technical Committee on Research; Appearance Retention Test Methods; Dimensional Change Test Methods; Colorfastness to Light Test Methods; Water Resistance Test Methods; Hand Evaluation Test Methods; Stain Resistance Test Methods; Home Laundering Technology; Colorfastness to Washing Test Methods; and on the Concept 2 Consumer® interest group. She served on the International Test Methods committee, the committee on ISO TC 38 Textiles, and the USA Technical Advisory Group for ISO TC 38 Textiles.

The Technical Committee on Research (TCR) Service Award was established in 2008 to recognize those members who have contributed greatly to the AATCC organization in a technical capacity. Senior members with at least five years of continuous membership in AATCC, who have contributed outstanding technical service to the Association through activity in a research committee within the past five years, are eligible. Selection is by unanimous choice of the TCR Service Award Committee. For more information about the TCR Service Award, visit www.aatcc.org.

Clothes That Change Color

From: ScienCentral

All too often, you eagerly tear open a holiday package and find something you'd like to wear—but it's arrived in



a color you despise. ScienCentral news reports a new thread developed for the military will make holiday disappointment and retail returns things of the past. You'll be able to change the colors of your clothes to suit yourself, whenever you please.

Rewiring your wardrobe

At Massachusetts Institute of Technology, professor Yoel Fink and his colleagues in the Department of Material Science have developed an innovative process to combine extremely thin layers of two materials, a plastic and a glass. The result: a new fiber that can reflect all the light that hits it, from any direction. Within the next two years, the U.S. Army plans to weave Fink's new thread into uniforms, to make an optical bar code that will help our soldiers distinguish friend from foe on night patrol, or during the smoke and confusion of a fire fight. (see "High Tech Army Togs")

View the complete story here: tinyurl.com/mrdgg4

Metameric Blacks: A Color Curious Column

Ever wonder ... "what is the best color for sunglasses?"

The answer, of course, depends on what you are trying to do with the sunglasses. Usually, the answer is gray. But sometimes it is yellow and other times it might be some other color. I'll explain why gray and yellow might be good choices.

Gray is the best choice if you want to see the colors of things in the most natural and accurate way. All gray sunglasses do is remove some of the light of all wavelengths (colors) in equal amounts. That helps us to see better on very bright sunny days when there is actually a bit too much light for our eyes. It will also make the contrast that we see less.

Contrast is the difference we see between bright and dark places in a scene. That is one reason it is not a good idea to wear sunglasses when it is dark. Our eyes are already working hard and the contrast we see is low; adding sunglasses then only makes it harder to see anything at all.

You can see in these pictures that gray sunglasses make the scene less bright and keep the colors looking reasonably unchanged. (Upper Left: Original Scene; Upper Right: Through Gray Filters; Lower Left: Through Yellow Filters; Lower Right: Through Pink Filters) So why would anyone choose yellow sunglasses? It turns out that yellow glasses can actually help us to see more contrast and detail in a scene. They do this by removing the blue light. Blue light is the most difficult for our eyes to focus and that makes blue things look a bit blurry. Blue light is also scattered a lot by the air and water in the atmosphere and that reduces contrast, or our ability to see things. Thus, if we remove the blue light with yellow glasses, we are removing the light that is scattered around a lot

in the world and the light that is focused the most poorly by our eyes. The result is a sharper and more contrasty image. That is often helpful for athletes trying to perform well in bright light. Also, the increase in contrast actually gives us the perception that things are brighter, even though the glasses have actually removed some light. Similarly, other colors might be chosen to enhance the contrast of specific objects (or as a fashion statement).

Content of this column is derived from *The Color Curiosity Shop*, an interactive website allowing curious students from pre-school to grad-



school to explore color and perhaps become interested in pursuing a science education along the way. Please send any comments or suggestions on either the column or the webpage to me at <mdf@cis.rit.edu> or use the feedback form at <whyiscolor.org>.

-Mark D. Fairchild

RIT's *University News* published a piece on Mark Fairchild and his Color Curiosity Shop. Read about it here:

www.rit.edu/news/story.php?id=48057

or visit the Color Curiosity Shop directly:

www.whycolor.org

You should have received your 2011 ISCC Membership Invoices in email already. If you did not, please contact: Cynthia Sturke email: isccoffice@cs.com or phone (703)318-0263

You can also now register online: www.iscc.org/applicationForm.php

Note from the Editor – Change Takes Time

Last month I made a plea for help with the calendar entries. I simply do not have the time to peruse all the member body websites and sort out the meetings and events that would be of interest to ISCC membership. You might notice that this month's calendar (and much of the newsletter contents) is heavily imaging and textile oriented. I heard from two helpful members who provided these events and articles. It's just that easy people. What events are you attending? What events would you attend if your boss had the budget? What's going on at your organization? These are probably of interest to folks reading this newsletter.

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ISCC News Issue #451 May/June 2011

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Cynthia Sturke, Mary McKnight, Mike Brill, and YOU!

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

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May/June 2011 Calendar

May 16-19 AATCC RA36 Color Measurement Test Methods, Research Triangle Park, NC
www.aatcc.org

May 16-19 IS&T Archiving 2011, Salt Lake City, Utah, www.imaging.org/IST/conferences/archiving/

May 15-29 Lightfair, Philadelphia Convention Center, Philadelphia, PA,
www.sid.org/conf/sid2011/sid2011.html

May 15-20 50th International Symposium, Seminar, and Exhibition, SID, Los Angeles Convention Center, Los Angeles, CA, www.sid.org/conf/sid2011/sid2011.html

June 1 Inaugural, Canadian Colour Association, Ontario College of Art & Design, Toronto, CA.
Details at apache.ocad.ca/events_calendar/eventdetail.php?id=3219.

Jun 7-10 2011 AIC Midterm Meeting, Interaction of Color and Light, Zurich, Switzerland,
Organizer: Pro/colore, www.aic2011.org

Jun 16 ASTM Special Conference on Retroreflection, Marriott, Anaheim; Anaheim, CA,
www.astm.org

Jun 22-23 ASTM E12 on Color and Appearance, ASTM International Headquarters; West Conshohocken, PA US, www.astm.org

July 10-15 CIE Quadrennial Session, Sun City, South Africa www.cie2011.co.za

Jun 28-30 ~~Sixth Oxford Conference on Spectroscopy~~ POSTPONED INDEFINITELY

Sept 23-24 3rd Annual Conference of the Society for Color and Appearance in Dentistry, Wyndham Downtown Chicago, www.scadent.org/about-2011-meeting

Oct 2-6 IS&T NIP Conference, Minneapolis www.imaging.org/ist/conferences/nip

Nov 7-11 CIC19, Society for Imaging and Technology, San Jose, CA,
www.imaging.org/IST/conferences/cic

Nov 12 ISCC topical meeting on color spaces, San Jose, California, (Co-located with CIC19)

Nov 14-17 ASPRS 2011: Fall Pecora Conference, Herndon, Virginia, www.asprs.org/pecora18/

Dec 7-9 AATCC Denim and Outdoor Performance Wear Symposium, Long Beach CA.
www.aatcc.org

Jan 22-26 IS&T/SPIE Electronic Imaging Conference, San Francisco, CA
www.imaging.org/ist/conferences/ei



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
BYK-Gardner USA	www.byk.com/instruments	301-483-6500
Datacolor	www.datacolor.com	609-895-7432
Hallmark	www.hallmark.com	816-274-5111
Hewlett-Packard Company	www.hp.com	650-857-6713
Hunter Associates Laboratory, Inc.	www.hunterlab.com	703-471-6870
IsoColor Inc.	www.isocolor.com	201-935-4494
Chester F. Carlson Center for Imaging Science	www.cis.rit.edu	585-475-5944
X-Rite Incorporated	www.xrite.com	616-803-2113

Thank You!



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)