



# Inter-Society Color Council News

## In This Issue

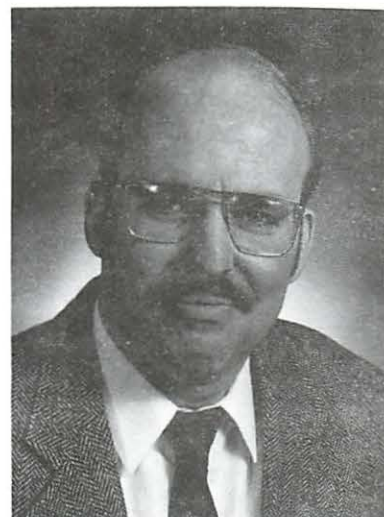
President Brill's Report.....	1
CR&A, In This Issue, February 1999.....	3
Calvin McCamy, 1999 ISCC Godlove Award.....	3
ISCC Annual Mtg. Update May 5-7, 1999.....	4
ISCC Call for Contributed Papers, May 1999.....	4
Call for Papers, Interest Groups I,II,III.....	5
Student Travel Grants, '99 ISCC Annual Mtg.....	5
October 1998 ISCC Annual Mtg. Report.....	6
OSA Top Papers at 1998 Annual Mtg.....	7
ISCC Board of Directors Nominees.....	7-9
John N. Kidder Obituary.....	9
AATCC RA36 November 1998 Mtg.....	10
Color Marketing Group News.....	11
Detroit Colour Council November Mtg.....	11
ISCC Welcomes Dupont Automotive Products .....	11
CORM 99 Annual Mtg & Call for Papers.....	12
IS&T International Conference, Oct. 1999.....	12
BYK-Gardner Historical Perspective.....	13
Publications Sale Continues.....	13
Arrangements Chair in Action.....	14
Hagley Color Fund Update.....	14
Minolta's Color Seminar, February 1999.....	14
New Advertising Opportunity.....	14
RIT MCSL 1999 Summer Courses.....	15
New ISCC Members.....	16
ASTM Symposium, January 1999.....	16
Chemichromics USA '99.....	17
Jobs Wanted Reminder.....	18
Calendar.....	18
Sustaining Members, Member-Bodies, Officers, Board of Directors and Contact Info.....	Back Page

Number 377

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1999

### ISCC PRESIDENT BRILL'S REPORT



I would first like to welcome to the Board of Directors Charla Haley, Craig Johnson, and Yan Liu. Also, I welcome Jack Ladson as the new President-Elect and Rich Riffel as the new Secretary. Our next goal is to support Bob Chung in his chairmanship of the upcoming Annual Meeting with TAGA in Vancouver (May 5-7, 1999).

At the last Board of Directors meeting, there were a few developments that have since had good consequences. First, Jim Keiser took on the chairmanship of a new Membership Committee that coordinates activities concerning sustaining members, member bodies, and individual members. Charter members of the Membership Committee are David Spooner, Jean Bourges, and Joann Taylor. In the short time since the last Board meeting, Jim has written letters to 20 companies asking them to become sustaining members. His own company, DuPont Automotive Products, has responded by becoming a sustaining member. A warm welcome to DuPont Automotive Products, and thanks for all your efforts, Jim.

Another result of the Fall Board meeting was that Dave Wyble of RIT took on responsibility for the ISCC Web



site. This site is very important to the ISCC, and we all appreciate Dave's volunteering to manage it. Consult this site for the latest information about ISCC activities and for links to other color-related sites.

Also, I want to thank Joy Turner Luke for her efforts to establish a collection of color-related materials at the Hagley Library in Wilmington, Delaware. This collection will be very valuable for color research, but needs to be catalogued and conserved before it is ready for research access. This will require money. Accordingly, please look at Joy's article in the November/December Newsletter, and consider contributing to the special Hagley Color Fund.

Finally, I've received word that power companies are planning Y2K drills on two dates next year (April 9 and September 9). I'll be watching this closely, as should we all.

*Michael H. Brill*

## COLOR RESEARCH AND APPLICATION IN THIS ISSUE, FEBRUARY 1999

There are several common threads running through articles in this issue. One is a sense of history, a second involves developments that have something to do with Albert H. Munsell, and a third is the study of color difference metrics. First we begin with a Talking About Color...column. Douglas E. Corbin, a graduate student at Rochester Institute of Technology (RIT), describes a problem that was faced there. While the Color Science Laboratory at RIT bears the name of Munsell, it did not have an image of Munsell to display. In this column, Mr. Corbin recounts the "Reconstruction of the Portrait of Albert H. Munsell." The resulting portrait gives students and visitors alike a sense of the heritage that flows through the laboratory.

Our first article also puts a historical perspective on a portion of twentieth century color science. Last year Henry Hemmendinger received the Inter-Society Color Council's Godlove Award for his contributions to the field of color. The article in this issue is an amplification of Dr. Hemmendinger's lecture from that occasion. In "The Role of Opponency in Twentieth Century Colorimetry," Hemmendinger describes the intense rivalry that developed between two factions. The first group was composed of

those who espoused the theory that color resulted from the retinal response to light stimulation, and the second group was composed of those who described color vision as the result of these stimuli on perceptions mediated by the brain. In the article Dr. Hemmendinger follows the development of these ideas through the century to the conclusion that trichromacy and opponency can legitimately coexist.

The next three articles relate to research following from work of Albert H. Munsell, and those three plus a fourth, focus on different aspects of color difference metrics. Professor Tarow Indow produced two related articles that are "Predictions Based on Munsell Notation." The standard Munsell notation of Hue Value/Chroma describes a cylindrical color solid. In "Part I. Perceptual Color Differences," a procedure is described that predicts perceived color difference directly from the Euclidean distance between points in the current Munsell solid. In "Part II - Principal Hue Components," Dr. Indow develops the notion of absolute and relative principal hue components. By having observers assess the degree of grayness and the degree of principal hues in the chromatic part of Munsell colors, the optimum directions of the principal hue vectors are determined. Other researchers have defined the chromatic response function by a cancellation method (i.e., how much of two complimentary colors, say red and green, need to be mixed together to result in a neutral tone). In this work the goal is to define redness, yellowness, etc., that is observed in Munsell color chips, not as a function of wavelength, but as a function of Munsell hue at various levels of chroma and value.

In the third article in this issue relating to developments resulting from Albert H. Munsell's work, Rolf G. Kuehni uses the Munsell Color System as a yardstick to examine the CIELAB color difference metric. He describes the "Hue Scale Adjustment Derived from the Munsell System" and compares it to similar factors for the CMC and BDF color metrics. Finally Mr. Kuehni challenges the researchers to develop a new space without the shortcomings of CIELAB.

Our next article also focuses on color-difference formulae, in particular the CIE 94. Using a CRT to produce the color stimuli for five luminance levels of each of the five centers recommended for study by the CIE, Manuel Melgosa, Maria Pérez, Ahmed El Moraghi, and Enrique Hita develop the discrimination ellipsoids for two normal



observers. They use this data to examine the weighting function for lightness proposed by CIE94. In "Color Discrimination Results from a CRT Device: Influence of Luminance," their research results are reported.

In order to produce specific colors on a CRT precisely, careful attention must be paid to the CRT and its control. Most conventional models are built with the assumptions of constant channel chromaticity, gun or channel independence, spatial independence, and temporal stability. A completely different approach is to use neural networks to train the computer to develop the right calibration. In our next article, Ningfang Liao and Zhiyun Gao report on a "A Comparative Study of a CRT Colorimetric Prediction Model by Neural Networks and the Models by Conventional Method."

It has long been known that when people are evaluating the color photographs, the image that is selected as best is usually not a colorimetrically perfect reproduction of the original scene. Is this related to the observer's incorrect recollection of the original scene? It can also be shown that another observer who has not seen the original scene, can still judge the realism of the reproduced colors, and that their judgement will not differ much from the judgements of the person who took the pictures himself. How can this be? We find out in "Color Reproduction and the Naturalness Constraint." In this final article of this issue, S. N. Yendrikhovskij, F. J. J. Blommaert, and Huib de Ridder present a framework for the understanding of and formal specification of the process underlying naturalness judgements.

*Ellen C. Carter*  
CR&A Editor

## **CALVIN McCAMY TO RECEIVE ISCC GODLOVE AWARD**

Mr. Calvin S. McCamy has been chosen to receive the Godlove Award during the ISCC 1999 Annual Meeting in Vancouver. The Godlove Award was named for Dr. I. H. Godlove and is the highest honor bestowed by the ISCC. It is given in recognition of a lifetime of distinguished service to the color community.

After serving in the Navy during World War II, Mr. McCamy received a B. S. in Chemical Engineering and an

M. S. in Physics from the University of Minnesota. He established a color measurement laboratory at Clemson University in 1951. McCamy then joined the National Bureau of Standards (now the National Institute for Standards and Technology, NIST) in 1952. He rose to the position of Chief of the Image Optics and Photography Section, where he conducted research on precise measurements of transmission and reflection, image structure, aerial and satellite photography, photography at extreme reduction, information theory, optical filter theory, color vision, and archival preservation of microfilms.



In 1970 Mr. McCamy became the Vice President for Research of the Macbeth Division of Kollmorgen Corporation (now GretagMacbeth) where for the next twenty years he conducted research on precise light measurement, color measurement, color filter design, simulation of daylight, geometric attributes of appearance, densitometry in photography and color printing, optical specifications for bar codes, color order systems, color standards, and related mathematics. In 1978 he headed the photographic study for the congressional investigation of the assassination of John F. Kennedy. During his tenure at Macbeth, Mr. McCamy designed the Macbeth Color Checker, which is used by color imaging scientists to evaluate color accuracy of imaging systems.

Since his retirement from Macbeth in 1990, Mr. McCamy has been consulting in color science from his home in

Wappingers Falls, NY. In 1997, he was presented the Armin J. Bruning Award by the Federation of Societies for Coatings Technology recognizing his outstanding contributions to the science of color in the field of coatings technology. Mr. McCamy has been a leader in national and international standardization of photography, color printing, and color science including chairing the committees on tables of spectral data and assessing quality of daylight simulators for the CIE.

Mr. McCamy has authored over 100 papers. He is a Fellow of the Optical Society of America (OSA), the Society for Imaging Science and Technology (IS&T), the Royal Photographic Society of Great Britain, the Society of Motion Picture and Television Engineers (SMPTE) and the Washington Academy of Sciences. McCamy is an honorary member of the ISCC and the Hong Kong Society of Dyers and Colourists, and holds memberships in the American Society for Testing and Materials (ASTM), the Council for Optical Radiation Measurement (CORM) and the New York Academy of Sciences.

*Bob Marcus, Publicity Chair*

## **ISCC ANNUAL MEETING UPDATE - MAY 5-7, 1999, VANCOUVER, B.C.**

Planning of the 1999 ISCC Annual Meeting to be held from May 5-7 at Westin Bayshore Hotel in Vancouver, B. C., is taking shape nicely, according to Bob Chung, Professor of RIT's School of Printing Management and Sciences, who is this year's ISCC Annual Meeting Chair. One of the highlights of the annual meeting is the Bridge Program which is designed to bring participants from the TAGA (Technical Association of the Graphic Arts) Conference (May 2-5, 1999) and the ISCC conference together. Bob has been working with Bill Ray, TAGA V.P. for Papers, in shaping the contents of the program.

The Bridge Program will take place on May 5, 1999. The entire morning will be devoted to the subject of color management. Tim Kohler, Canon Information Systems and the Chairman of the ICC (International Color Consortium) will kick off the session by addressing ICC specifications and its current development. Parker Plaisted of Alcan, who was the Director of the RIT Research Corporation's Imaging Division, will discuss implementation of ICC-based profiling tools. Erwin Widmer of EMPA will evaluate ICC-based color management system performances. Mike Stokes of HP will share his crystal ball of what lies ahead in

shaping the color management paradigm. The morning session also includes a presentation by Edward Granger (X-Rite) whose topic is entitled, "something old, something new, something borrowed, something blue," and a presentation by Gus Braun (RIT) on gamut mapping for pictorial images. The afternoon portion of the TAGA/ISCC Bridge Program includes the following presentations: David McDowell (Kodak) on graphic arts color standards, David Spooner (rhoMetric) on measurement without bounds, Di Yuan Tzeng (RIT) on spectral reflectance prediction of ink overprints by Kulbeka-Munk turbid media theory, Richard Holub (Imagicolor) on some requirements for accurate network color, and K. Ladunga (Technical Univ. of Budapest) on new color vision tests on monitor.

While program contents for the ISCC Interest Groups I, II, III, and Education Comm. are still taking shape at the time of this news release, Romesh Kumar, Arrangements Chair is happy to report that a Salmon Fest via ferry has been arranged for the grand opening reception on May 5, 1999. Please plan to attend this year's ISCC annual meeting.

*Bob Chung, Chair*  
December 23, 1998

## **INTER-SOCIETY COLOR COUNCIL CALL FOR CONTRIBUTED PAPERS** **ISCC Annual Meeting, May 5-7, 1999**

There will be a Contributed Posters Session at the 1999 ISCC Annual Meeting in Vancouver, BC, Canada. The intent of this session is to provide a vehicle which could be used by all ISCC members to share state-of-the-art color information. Whether you are an artist, scientist, industrialist, educator, student, or researcher, we are interested in hearing what is new in your area of color. The topics for this session are completely open. Each poster contribution should represent original work of a non-commercial nature, which is suitable for presentation. This Poster Paper Session will provide you with an excellent opportunity to present the innovative color work that you may be doing, to color-interested colleagues attending the meeting. Please send entries, in the form of a title and abstract by March 1, 1999 to:

Yan Liu, Chair, Contributed Papers  
Research Dept., Gemological Inst. of America  
5345 Armada Drive, Carlsbad, CA 92008  
Phone: (760) 603-4500 Ext. 7563  
Fax: (760) 603-4021 email: [yliau@gia.edu](mailto:yliau@gia.edu)



# CALL FOR PAPERS !!!

## INTEREST GROUP II INDUSTRIAL APPLICATIONS OF COLOR

### THE MANY INDUSTRIAL ASPECTS AND USES OF COLOR

"Industrial Applications of Color", presents technical challenges and solutions that industry encounters in commercial color applications. The range of issues can include, but are not limited to, color reproduction, color management, color measurement techniques, color tolerances, color matching, color fidelity testing, continuous color monitoring, relationships between color and other physical characteristics, or other color related industrial applications.

Send one page abstract by March 1, 1999 not more than 200 words to the chair:

**Michael Stokes**  
Interest Group II Chair  
Hewlett-Packard Co.  
11311 Chinden Blvd,  
MS 227, Boise, ID 83710  
Tel: 208-396-4261  
Fax: 208-396-5161  
*Michael\_Stokes@hp.com*

## STUDENT TRAVEL GRANTS



Student Travel Grants applications are now being accepted for student travel to attend the ISCC Annual Meeting in Vancouver, BC in May 1999. Two \$500 Travel Grants are available. A preference will be given to those who are giving presentations or posters. For further information, please contact:

**Dr. Vivianne Smith, Education Committee Chair,**  
Univ. of Chicago, 939 E. 57th St., Chicago, IL 60637  
tel: 773-702-1983 Fax: 773-702-4442  
email: *vc-smith@uchicago.edu*

## INTEREST GROUP I FUNDAMENTAL AND APPLIED COLOR RESEARCH

Abstracts are being solicited for presentations on fundamental or applied research on topics related to:

### COLOR AND GRAPHICS

Send one-page abstract no later than March 1, 1999 to:

**Dr. Helen H. Epps**  
Interest Group I Chair  
The University of Georgia  
300 Dawson Hall  
Athens, GA 30602  
Tel: 706-542-4913  
Fax: 706-542-4862  
email: *hepps@fcs.uga.edu*

## INTEREST GROUP III ART DESIGN AND PSYCHOLOGY

Abstracts are being solicited for presentations on fundamental or applied research on topics related to:

### COLOR & LIGHTING TECHNOLOGY - COLOR AND THE PSYCHOLOGY OF COLOR RENDERING.

Send one page abstract no later than March 1, 1999 to:

**Curt Fritzeen**  
Interest Group III, Chair  
Steelcase  
4 Columbus Circle  
New York, NY 10019  
Tel: 212-445-8812  
Fax: 212-445-8845  
email: *cfritzeen@steelcase.com*

## THE 67TH ANNUAL ISCC MEETING

On October 2, 1998 the 67th Annual Meeting of the Inter-Society Color Council (ISCC) convened at the Marriott Inner Harbor Hotel located in Baltimore, Maryland. Mark Fairchild, the meeting chair, is to be congratulated for his fine program. There were over 100 individuals registered from around the world representing the arts, the sciences, and the industries. The ISCC joined with the Optical Society of America (OSA) on October 4, presenting the topic session; "Color Discrimination and Color Differences: Perception and Prediction." This topic provided a bridge between the ISCC meeting and the OSA meeting, which followed in the Baltimore Convention Center. Participants from the CIE Division I meeting, which was also held at the Marriott, enhanced the international flair of the meetings.

The program for the ISCC Annual Meeting included speakers from Asia, Europe, the United States and Canada. The topics presented were: the physiology of human vision, the color measurement viewpoint, the psychophysical aspect of production, the artists' use of color, and the cultural uses of color. The presenters provided ideas which crossed intellectual as well as geographic boundaries.

While it is not possible to report here in detail about each of the presentations at the meeting, a full meeting report will be published in the June issue of *Color Research and Application*. The Education Committee's session continued to cover the breadth of color with three talks: "The Evolution of Human Color Vision" by James Jenness (College of Wooster); "The Importance of Color in Language and Culture," by James Schirillo (Wake Forest University); and "The Color of Art, and More..." presented by Glenn Miller (Rochester Institute of Technology). The talk was most timely as the Van Gogh art exhibition that opened in Washington, D. C. was front page news on The Washington Post for October 2. The Industrial Applications of Color, Interest Group II chaired by Monty Service featured "Color Image Parameters for Color Appearance Description," by Alain Tremeau and Philippe Longere (Universite Jean-Monet de Saint Etienne); "Testing Color Appearance Models Including CIECAM97 using SCID Images" by Hirohisa Yaguchi, Tamotsu Yoshizawa, Hironobu Yoshikawa, and Satoshi Shiori, (Chiba University); "An Evaluation of the Instrumental and Visual Color

Difference of Metameric Tile," by Julie Taylor and Paula Knee (National Physical Laboratory), Mitsuharu Endo and Miyoshi Ayama (Utsunomiya University); and "Abstract Mathematics Provides Fundamental Color Order Systems and Applications For Industry" by Avery Zoch (University of Houston). During the evening wine and cheese reception participants were treated to six posters covering a wide gamut of color issues. The poster titles were: "Optimum Saturation as a Measure of Psychological Evaluation of a Colored Image" by Ken Sagawa, Teruko Takizawa, and Tadashi Kikuchi; "Reliability of the Bromothymol Blue (BTB) Method for Color in Virgin Olive Oils," by M. J. Moyano, F. J. Heredia, M. Alba, E. Hita, and M. Melgosa; "Temporal Characteristics of Color Discrimination Examined in the Physiological Based Color Space" by K. Kawamoto, H. Yaguchi, and S. Shioiri; "Identification of Color Appearance in Varying Lighting Conditions" by Monica Billger; "Color Appearance Under Different Surround Conditions" by Yasuhisa Nakano, Takuya Yohshina, Ken-ichio Suehara, and Takuo Yano; and "Computer Synthesis of Spectroradiometric Images For Color Imaging Systems Analysis" by Garret Johnson and Mark Fairchild.

The Saturday morning session, Interest Group I meeting, co-chaired by Michael Brill and Helen Epps, followed the research theme of "Color Difference and Color Appearance." The talks were: "The CIECAM97s Color Appearance Model" by Mark Fairchild (Rochester Institute of Technology); "Quantitative Testing of Color Appearance Models Using the Munsell Renotation Data" by David Wyble and Mark Fairchild (Rochester Institute of Technology); "Towards an Improved Uniform Color Space" by Rolf Kuehni (Dystar) and Scott Burns (University of Illinois at Urbana-Champaign); "New Color Effects Related to Retinal Organization" by C. McCamy (Consultant in Color Science); "Lightness, Whiteness, Blackness, and Chromaticness in Chromatic and Achromatic Colors" by Osvaldo da Pos, S. Masin, and L. Bertoncello (University of Padua); and "Basic Color Terms and Basic Color Categories" by C. Hardin (Syracuse University).

The afternoon session, Interest Group III: Art Design and Psychology, chaired by Shashi Caan and Curt Fritzeen, had the theme of "Global Culture and Color". The two talks were: "Education Color '99: A Preview" by Jean Bourges (Bourges Color International); and "Color, Commerce and Cash" by Keith Hoover (Polo/Ralph Lauren).

Monday, Oct. 5, a joint ISCC/OSA Color Vision and Measurement Poster Session was held in the Convention Center. There were 21 excellent Posters with varied topics dealing with physiological aspects of color vision, color discrimination and independent component analysis of Munsell Spectra.

In addition to the high quality technical program, the annual ISCC business meeting and awards luncheon was held Saturday, October 3. New officers and directors were installed, and outgoing directors and committee chairs honored. Lou Graham was presented the ISCC Nickerson Service Award for 40 years of involvement with ISCC. Graham was the first president of the Color Marketing Group and also past president of the ISCC. David Alman was presented the Macbeth Award for significant recent contributions to science and technology. Alman was cited for his work in development of improved color difference formulae through his chairmanship and accomplishments of CIE/TC 1-29 committee. The complete award ceremony, including citations and acceptance speeches are recorded in the November/December 1998 Edition, Number 376, of the ISCC Newsletter.

*Arnold M. Service and Jack Ladson*

## OPTICAL SOCIETY OF AMERICA TOP PAPERS AT 1998 ANNUAL MEETING

At the 1998 OSA Annual Meeting in Baltimore, MD selected symposia were featured in a poster format. Over 315 posters were presented, and blue ribbons were awarded to the most outstanding. For the category of Vision and Color, these are the winners:

"Effects of Nonuniform and Uniform Surrounds on Color Appearance and Discrimination" by Anna Y. Leonova and Donald I.A. MacLeod from the University of California at San Diego; "Isolation of Peripheral Chromatic Mechanisms" by William Swanson and Pauline Pearson from the Retina Foundation of the Southwest; "How do Rods and S-cones Interact in Hue Discrimination?" by Roger Knight, Jennifer Feyma, Garth A. Fowler, David Shepard, and Steven L. Buck from the University of Washington; "Independent Component Analysis of Munsell Spectra" by Dharmesh Tailor, Leif H. Finkel, and Gershon Buchsbaum

from the University of Pennsylvania; and "Image Quality of the Crystalline Lens in the Human Eye" by Pablo Artal and Antonio Guirao of Rochester Institute of Technology.

**Congratulations to all!**



## NOMINEES FOR ISCC BOARD OF DIRECTORS

### **Nurhan Becidyan**

Nurhan has been in the color business for over 25 years. He started first in the Paper Industry as a Technical Director of a tissue mill in Turkey, and then joined Sandoz Ltd. (now Clariant) of Switzerland as sales engineer in 1976. He has worked for Sandoz (Clariant) in Turkey, Egypt, and Switzerland before being transferred to the U.S.A. in 1982. Nurhan has been involved in selling, marketing and providing technical service to a multitude of color using industries (paper, leather, plastics, synthetic fibers, printing inks, coatings, aluminum and detergents) all these years. Currently he is the President and Chief Operating Officer of United Mineral & Chemical Corporation, an import and distribution company that acts as exclusive agents to many colorant and chemical companies. His company is one of the few companies in the USA that markets all types of pigments; i.e. organic and inorganic; fluorescent and phosphorescent; colored and white.

Nurhan has an undergraduate degree in Chemical Engineering from Robert College, School of Engineering, Istanbul, Turkey and a graduate degree from the Institute of Paper Chemistry (now called IPST) of Appleton, Wisconsin. His main interests lie in phosphorescence and fluorescence (both visible and UV activated) and applications of color for security purposes. He currently holds membership in CPMA (Color Pigments Manufacturer Association), NAPIM, TAPPI, ASTM (active in various subcommittees of D12), and FTCA.

### **Giordano Beretta**

Giordano Beretta received a diploma in Mathematics and a doctorate in Computer Science from the Swiss Federal Institute of Technology in Zurich. He has attended several



industrial courses at the Munsell Color Science Lab. While at Xerox PARC he was one of the pioneers in computational color reproduction and has worked on tools to help people designing pleasing color palettes for industrial design and graphic arts applications. Prior to his current position at Hewlett-Packard Labs, Giordano was the Technical Advisor for Color at Canon. His current activities include digital color communication and spectrophotometry in process control. Giordano has co-chaired a number of conferences and sessions on color hardcopy for the IS&T and SPIE.

### **William M. Gresho**

William M Gresho works for Delphi Delco Electronics in Kokomo, Indiana. He has 25 years experience in product development. The last six years in automotive electronics concentrating on measurement and control of reflected, transmitted, and emitted color. Some of the areas of his expertise include the application and development of colorimetric methods for automotive interiors and instrumentation, and measurement of vibration, acoustics, color and lighting, and dimensional metrology.

Bill graduated with High Honors from Lehigh University with a Bachelor of Science in Electrical Engineering. Later he earned a Masters of Engineering in Electrical Engineering at Rensselaer Polytechnic Institute and did further graduate study in control theory at Rutgers University. He is holder of two patents and has published articles in various technologies from basic research to very applied topics. In the color world he is most active in the Detroit Colour Council and the Inter-Society Color Council.

### **Daniel G. Phillips**

Dan Phillips received a B.S. and Ph.D. in Chemistry from Rensselaer Polytechnic Institute, where he was a graduate student in the color science program under Professor Fred Billmeyer. He has been an ISCC member for 25 years. Dan has been involved professionally in plastics, ink, and for most of his career the coatings industry. He is currently Manager of the Color Science and the Industrial Colorants laboratories at Creanova, Inc, a major manufacturer of pigment dispersions. Dan's interests in color science are in the industrial application of computer color matching and color difference measurement as well as color order systems and video to hard copy representation of color.

### **Art Springsteen**

Art Springsteen is the Principal Scientist and Director for Advanced Development at Labshpere, Inc. He has held the position of Principal Scientist since 1993, before which he was head of the reflectance research division. He has developed reflectance instrumentation, high and low reflectance materials and coatings, along with a variety of other materials during his tenure at Labsphere. Art is presently involved with the development and marketing of new products.

In 1977 he received a Ph. D. in Organic Chemistry from the West Virginia University following an M. S. in Chemistry from Marshall University and a B. S. (Chemistry) from St. Francis College. He has also done post-doctoral work on oncostatic compounds. Dr. Springsteen has been a member of the CORM Board of Directors since 1991, serving as secretary of CORM since 1995 and is also chair of the Optical Properties of Materials, Technical Committee of CORM. He has served as program chair for the 2<sup>nd</sup> and 3<sup>rd</sup> Oxford conferences, and is one of the organizers of Oxford Conference IV. Dr. Springsteen was a member of the National Research Council of the United States and is currently a member of the Society for Applied Spectroscopy, the Council for Near-Infrared Spectroscopy, the American Society for Testing Materials, where he is active on Committee E-12 (Color and Appearance) and E-13 (Molecular Spectroscopy), the American Association of Textile Chemists and Colorists, and the American Chemical Society.

### **Ralph Stanziola**

In 1985 Ralph Stanziola founded Industrial Color Technology which offers a variety of services to industry. These services are primarily directed towards the solution of industrial problems which involve color control. This type of work was not new to Mr. Stanziola. In 1970 he was one of the founders of Applied Color Systems, Inc. and operated as Executive Vice-President and Technical Director.

He also spent 9 years as Technical Representative and General Sales Manager for Davidson and Hemmendinger and later for Kollmorgen Corporation, which acquired Davidson and Hemmendinger. He also spent nine years in Research and Technical Service for the Dyes Department of the



American Cyanamid Company.

Ralph holds a B. S. degree in chemistry from the Philadelphia College of Textiles and Science. He has lectured on color at Rensselaer Polytechnic Institute, Philadelphia College of Textiles, Rochester Institute of Technology and Eastern Michigan University; as well as on industrial control in the United States, Europe, and Japan. He is a member of the AATCC, the SPE, the ISCC, the FSCT, and the Detroit Colour Council. He was awarded the Armin J. Bruning Award for his outstanding contribution to the science of color in coatings technology and the TAPPI "Finest Faculty" Award and two patents.

### **DR. JOHN KIDDER DARTMOUTH PROFESSOR AND ISCC MEMBER**

John Newell Kidder, 66, Professor of Physics at Dartmouth College, died suddenly on November 21 at the Dartmouth-Hitchcock Medical Center in Lebanon, N.H. He was born April 30, 1932, in Boston, Mass., the son of Henry Purkitt and Julia (Howell) Kidder. He grew up in Concord, Mass., and attended Fenn School and Milton Academy. Professor Kidder began teaching at Dartmouth in 1962 and has been an active member of the faculty for 36 years. An expert in the field of color and vision science, he served as Chair of the Physics and Astronomy Department from 1983 to 1990. He taught beginning, intermediate and advanced courses in physics and was active in interdisciplinary work, teaching courses in color and vision for humanities majors, a course in vision science and introductory courses in physics for honors students.

A 1954 graduate of the California Institute of Technology, he earned his Ph.D. from Duke University in 1960 and then spent two years at Yale University as an Air Force Postdoctoral Research Associate before coming to Dartmouth in 1962. In 1971-72 Professor Kidder studied at Imperial College in London, England, on a National Science Foundation Faculty Fellowship. He was an Academic Visitor at the Center for Human Information Processing at the University of California at San Diego in 1987-88. The author of numerous papers and articles on color and optics, Professor Kidder was a dedicated teacher whose stu-

dents recall him as someone who cared deeply about their academic as well as their personal aspirations. He loved to teach and touched generations of Dartmouth students with his enthusiasm.

John N. Kidder was a member of the Optical Society of America, the Association for Research in Vision and Ophthalmology, the American Association of Physics Teachers, the Inter-Society Color Council and Sigma Xi. At Dartmouth he served as chair of the Graduate Committee in the Physics and Astronomy Department and was a member and past chair of the Committee of Premedical Advisors since its inception 25 years ago. He also served on the College Executive Committee, was Chair of the Council on Student Life and a member of the Instructional Equipment Committee.

He spent every summer of his life with his family on Cuttyhunk Island in Massachusetts and will be forever remembered as a legendary fisherman. Professor Kidder was an avid fan and supporter of Dartmouth Athletics. He loved to play ice hockey and was a regular in the local pick-up and Dartmouth intramural leagues.

He is survived by his wife, Joan, of Hanover, NH., whom he married in 1960; two sons, John N., Jr. of Takoma Park, MD, and James S. of Eugene, OR.; his daughter, Sarah K. LaBombard of Lebanon, NH.; his brother, George H. Kidder of Concord, MA; his sister, Josephine W. Shane of Wayland, MA; one granddaughter; one grandson; and many nieces and nephews. He was predeceased by his brother, Henry P. Kidder Jr.

#### **FROM THE ISCC OFFICE.....**

The 1999 ISCC Membership Dues were mailed out in mid-December. If you have not received your "personalized copy" please let Cynthia Sturke at the ISCC Office know.

ISCC is now equipped to receive your dues by MC or Visa. This will also be in effect for registrations for the upcoming ISCC 68th Annual Meeting in Vancouver, B.C.

## AATCC RA36 COLOR MEASUREMENT TEST METHOD RESEARCH COMMITTEE

The Committee met at the Research Triangle Park, NC on November 16, 1998. There were twenty members and nineteen guests present. The following new members are welcomed to RA36:

Mr. Francisco Campa, Carriage Industries  
Dr. Ellen Carter, Minolta Corp.  
Mr. Jack Ladson, Estee Lauder Co.  
Mrs. Sheryl Powell, Glenoit Corp.

### OLD BUSINESS

#### A. Subcommittees:

1. Color Evaluation Video (Gray and Chromatic Transference Scales) - Hammonds will verify script before February meeting. A mock video will be created by AATCC staff before the formal production is begun.

2. Lighting Communications Subcommittee - Bino reported early responses from lighting survey. The survey was included with one of the ISCC News for the ISCC members to participate. The initial results of the lamp usage is distributed to members with the minutes. Any one interested to obtain a copy should write to the secretary of RA36, Color Measurement Test Method Committee

3. Color Measurement Workshop - Another excellent session was conducted with 26 attendees. A steering committee was formed for construction of a symposium to complement the workshop. The steering committee will be chaired by R. Harold and will include C. Hawkyard, D. Hinks, J. Hoskins and A. Laidlaw.

#### B. Letter Ballots

1. Committee letter ballot

(a) Item #1 on Proposed revision/reaffirmation of Test Method #173, CMC Calculation of Small Color Differences for Acceptability — Test method has been proposed for revision and reaffirmation.

(I) Interlab trial — Eight of fourteen test labs have measured the samples and submitted data.

(b) Item #2 on proposed new evaluation procedure for Shade Matching of Textile Materials; Visual Method —

The re-ballot received 41 affirmatives (six comments), four negatives with comments, and four abstentions. Item #2 will be concurrently proposed as a committee and TCR (Technical Committee on Research) letter ballot following revision to reconcile comments.

#### C. Other Documents in review

1. Evaluation Procedure 1: Gray Scale for Color Change — Laidlaw reported that this procedure does not need extensive revisions.

2. Evaluation Procedure 2: Gray Scale for Staining — Laidlaw reported that this procedure does not need extensive revision either.

3: Evaluation Procedure 3: AATCC 5-Step Chromatic Transference Scale— This scale is no longer manufactured. Ricard suggested that the procedure remain in print, but state that the scale is no longer available.

4: Evaluation Procedure 4: Standard Depth Scales for Depth Determination — Vogel reported that measurements have been made and a good correlation exists between depth and DEcmc.

#### D. Liaisons with other organizations

1. ISO — Connelly reported on the July 1998 meeting in Charleston, SC. Items of interest include tint and whiteness data, glossary of color measurement terms, and a software program to determine colorfastness and stain rating. Connelly also reported on the interest of the proposed evaluation procedure Shade Matching of Textile Materials: Visual Method.

2. ISCC — Laidlaw reported the need to review the current AATCC delegation (ten slots). Expressing an interest to participate on this delegation were C. Bino, J. Burtness, F. Campa, R. Connelly, R. Harold, A. Laidlaw, and B. Vogel.

### NEW BUSINESS

A. Charles Bino was nominated and elected as the new chair of RA36 for a three-year term.

B. Greg Stehn was appointed as new secretary of RA36. Meeting was adjourned at 1:50 p.m.

Andrew Fritchley, Secretary of RA36

(The above minutes edited by G. Celikiz.)

## COLOR MARKETING GROUP

Over 650 Color Designers from around the world will meet in Chicago, IL, from April 18 - 20, 1999, as Color Marketing Group ([www.colormarketing.org](http://www.colormarketing.org)) members collectively forecast colors for manufactured products for Consumer markets in the year 2001. Members will develop short- and long-range color forecast for a vast array of Consumer products — for everything from Communications/Graphics to Fashion, from Action/Recreation to Transportation. Members will also participate in sessions dedicated to developing marketing strategies and nurturing creativity.

During the Conference, 2001 Consumer Color Directions® Workshops will focus on forecasting colors that will appear in the year 2001, while the 1999-2000 Consumer Colors Current® Workshops Concentrate on color trends already appearing in Consumer markets or committed to appear in the next 12 to 18 months. CMG members not involved in Consumer markets will attend Contract Color & Design Workshops, where previous CMG Palettes are examined to discuss industry-specific color applications.

The Conference will be held April 18-20, 1999, at the Palmer House Hilton in Chicago, IL and is open to members only. For more information please contact Beth Shannon at Color Marketing Group, 703-329-8500.

## DETROIT COLOUR COUNCIL November 19, 1998 Meeting

The DCC held its last meeting of the year at the Troy Marriott on November 19, 1998. The topic was : The Proposed Upgrade To SAE J361: Procedure for Visual Evaluation of Interior and Exterior Automotive Trim.

Four committee members presented the scope and changes to the Procedure.

Terese Schroeder - Daimler-Chrysler  
William Gresho - Delphi Delco Electronics  
Don Nickell - Canadian General-Tower  
John Tasca - Techni-Cal Services

Terry started the meeting with an introduction and background information. Bill talked about the factors affecting color perception including color temperature and the ef-

fects of not isolating the viewing area. Don followed with a summary of the revisions. John reviewed the proposed checklist which covers set-up, perch & walls, ambient light, observer and maintenance. The document is currently under revision, under the guidance of the Detroit Colour Council, with IFAI authorization.

## New Officers for 1999

Current president, John Loftus introduced the slate for officers for 1999:

President - Lisa Nicol  
Vice- President - Kathy Loftus  
Secretary - Wendy Lorenzen  
Treasurer - Terry Schroeder

This is the first time in the history of the DCC where all the officers are women, proving, once again, that the DCC is a progressive and diverse organization.

*J. R. Keiser*

## NEW SUSTAINING MEMBER

We welcome DuPont Automotive Products to our growing list of Sustaining Members in the Inter-Society Color Council. The company recognizes the educational value and influence that the ISCC has in the color industry. DuPont Automotive Products is the leading supplier of color topcoats to automakers in North America. Also, as the leading Refinish supplier, DuPont Automotive Products devotes enormous time, energy and resources to aid repair shops in accurately matching color. DuPont's position will expand globally with original equipment manufacturers and in the aftermarket with its announced intention to acquire Herberts, the leading automotive coatings supplier in Europe.

DuPont's tradition of color styling leadership began in 1923 with the introduction of the first fast-drying color topcoat technology. Up until then, automotive color finishes required days, and often weeks, of application time. During that time, Henry Ford's adage "You can have any color you want as long as it's black" was a practical necessity for color popularity by developing more than 150 new colors a year based on its research into trends and business involvement in fashion apparel, home furnishings and graphic arts.

*J. R. Keiser*

## **CORM 99 ANNUAL CONFERENCE ANNOUNCEMENT AND CALL FOR PAPERS**

### **Measurement and Characterization of Signaling and Illumination Devices in Transportation**

The 1999 Annual Meeting and Conference of the Council for Optical Radiation Measurements (CORM99) will be held at the Gaithersburg Hilton, Gaithersburg, MD from Monday May 3, 1999 through Thursday May 6, 1999.

The conference will consist of technical sessions addressing measurement and characterization of signaling and illumination devices used in transportation. Preliminary session titles and conference schedule are as follows:

#### **Monday May 3, 1999**

CORM subcommittee meetings

#### **Tuesday May 4, 1999**

Lights & Signals — including high intensity discharge (HID) lamps, flashing lamps and Strobes

Light Emitting Diodes — used in CW and flashing signaling devices Tuesday Evening

Franc Grum Memorial Lecture and Banquet

#### **Wednesday, May 5, 1999**

Retroreflectors and Work Zone Materials

Optical Metrology of Displays — including contrast measurements, color measurements, and accreditation of measurement laboratories

#### **Wednesday 11:30 AM to 12:00 noon**

CORM Annual Business Meeting

#### **Thursday May 6, 1999**

Special Function Lighting — including photoluminescent materials, fluorescent materials, and fiber illumination devices.

Authors are encouraged to contribute papers to the conference coordinators by 15 February, 1999. For details and updates, check the CORM website at [www.corm.org](http://www.corm.org).

### **Conference Coordinators:**

David F. King  
c/o Boeing Commercial Airplane Group  
P.O. Box 58928, Seattle, WA 98138  
Tel: 206-662-0898 Fax: 206-662-0453  
email: [david.f.king@boeing.com](mailto:david.f.king@boeing.com)

Richard L. Austin

c/o Gamma Scientific, Inc.

8581 Aero Drive San Diego, CA 92123

Tel: 619-279-8034 Fax: 619-576-9286

email: [rlaustin@aol.com](mailto:rlaustin@aol.com)

## **THE SOCIETY FOR IMAGING SCIENCE AND TECHNOLOGY**

The Society for Imaging Science and Technology (IS&T) will hold NIP15: International Conference on Digital Printing Technologies at the Caribe Royale Resort Suites & Villas, Orlando, FL from Oct. 17-22, 1999. Dr. Michael H. Lee of Hewlett-Packard Company will serve as General Chair ([mhlee@hpl.hp.com](mailto:mhlee@hpl.hp.com) or 650-857-8640).

The Society's NIP Conferences have emerged as the pre-eminent forum for presentation and discussion of advances in the field of non-impact and digital printing technology. With a comprehensive technical program and over 150 contributed papers by leading scientists and engineers from industry and academic organizations, the Conference participants will learn of the latest developments in printing processes and materials, emerging technologies and future applications of digital printing. Preliminary session topics include: ink jet printing and electrostatic marking process and materials, optoelectronic imaging materials and devices, wide and grand format printing, printing systems engineering/optimization, thermal printing, textile and fabric printing, digital printing instrumentation, print and image quality, color science/image processing, production digital printing, computer-to-plate technology, novel digital printing systems, liquid toner processes, media for digital printing and specialty printing applications.

Keynote addresses will bring a broader perspective to industry-wide issues and market trends. In addition, an Exhibition of digital printing products, components, materials and quality control instrumentation is planned.

The NIP15 Conference Committee invites submission of papers representing original work in the science and technology of digital printing. Interested parties should send an abstract of approximately 200 words and a 75-word biographical sketch to the IS&T web site at [www.imaging.org](http://www.imaging.org), following the directions on the NIP15 Conference page. Submissions can also be mailed to "[nip@imaging.org](mailto:nip@imaging.org)".



Abstract deadline is March 22, 1999. Direct inquiries to Dr. David S. Weiss, NIP15 Publications Chair, [dweiss@kodak.com](mailto:dweiss@kodak.com) or 716-477-7094.

## **GARDNER INSTRUMENTS: COLOR AND GLOSS — A HISTORICAL PERSPECTIVE**

The late Dr. Henry A. Gardner, Sr. was an ingenious paint chemist who began working early in the 20th century with the National Paint, Varnish and Lacquer Association in Washington, DC. He sensed the need of the coatings industry for improved recipes for paint manufacture and for instrumentation to evaluate the quality of paints and painted materials. Many test procedures were developed, including those to indicate whether optical properties of coatings, such as color and gloss were being maintained or improved. Dr. Gardner left the Association in 1924 to establish the Henry A. Gardner Laboratory located in the Washington suburb of Bethesda, MD. There, he and his employees, developed instruments and test methods that continue to be used in paint laboratories around the world.

By the late 1930's, visual assessment methods for color and gloss were found to be too subjective, and the need to develop apparatus for objective test methods was recognized. Optical instrument research was being carried on at the National Bureau of Standards (NBS). A report published by NBS in 1940 documented the development of a Multipurpose Photoelectric Reflectometer (MPR) to measure both color and gloss. Color measurement was carried out by use of three colored filters (red, green and blue). NBS research was in the public domain, so Gardner was free to make use of it, and he began commercial manufacture of the instrument. This relatively simple instrument was so well accepted that over a period of 30 years, Gardner Laboratory fabricated more than 1,000 instruments of the MPR design. One of them is on exhibit in the lobby of BYK-Gardner USA in Columbia, MD.

Several glossmeters were developed to overcome the gloss measurement limitations of the MPR, which did not lend itself to precise geometry control. It was also difficult to reproduce the readings from one MPR to another. Several of these glossmeters are also exhibited in the lobby of BYK-Gardner USA.

Dr. Gardner with his colleague George Sward put together

a publication, titled "Gardner/Sward Paint Testing Manual" listing test procedures as well as useful instruments and equipment. In 1995 the expanded 14th Edition of the Gardner/Sward Paint Testing Manual was published by ASTM. The Manual found uses in laboratories developing products other than paint, such as plastics, chemicals and cosmetics.

In 1999, BYK-Gardner will celebrate the 75th anniversary of its founding, as well as the perpetuation of the historic Gardner legacy!

The above was condensed from an article that was written by Harry K. Hammond III. Mr. Hammond is currently a Consultant to BYK-Gardner.



### **SPECIAL SALE CONTINUES.....**

#### **Reprints of "Color and Light"**

by Fred W. Billmeyer Jr., and Harry K. Hammond, III.

Chapter 40 of ASTM Paint Manual, 23 pages

\$5 each 20 copies \$50... Authorized reprint from  
ASTM Manual 17, Copyright 1996.

American Society for Testing and Materials,  
100 Bar Harbor Dr., W. Conshahocken, PA 19428-2959

#### **"Demystifying Color" by Bob Chung**

11 pages (color), \$5 each 20 copies \$50...

This technical report produced by Bob Chung of R.I.T.  
when he was ISCC Education Committee Chair,  
discusses and explains ten myths about color.

Either publication can be obtained by sending a check  
or money order (pre-paid-s&h included) to:

Inter-Society Color Council,  
Cynthia J. Sturke, Admin. Asst.  
11491 Sunset Hills Road,  
Reston, VA 20190

## WHAT DOES IT TAKE TO BE AN ARRANGEMENTS CHAIR?

In answer to that question we offer this photograph of the ISCC's Arrangement Chairman, Romesh Kumar.



Along with the ability to hold two intelligent conversations at one time, arrange for all the meals, entertainment, hotels, rates, audio visual setups and greet everyone at registration as if he had all the time in the world, Romesh pulls it all off with a great smile and a unique sense of humor.

Romesh, the ISCC thanks you for all your expertise as our ISCC Arrangements Chairman. We appreciate all the time and effort you put in to make our meetings run smoothly.

### HAGLEY COLOR FUND UPDATE

The ISCC Office reports that donations for the Hagley Color Fund have started to be received along with the ISCC membership renewals. We are glad to see that members are supportive of our attempt to preserve the history of color. Donations to the Hagley Color Fund are tax deductible and will help in the cataloging of the color materials which have been sent to the Hagley. Our thanks to Joy Turner Luke for all the work she has invested in this historic tribute to color!

## MINOLTA

### MANAGING AND CONTROLLING COLOR

The Light and Color Applications Center of Minolta Corporation is offering a full-day seminar on color theory and application in the following cities:

February 23, 1999      Kansas City, MO

February 25, 1999      Minneapolis, MN

For information on these and other training sessions in controlling, matching and formulating color, please contact the Center at:

Light & Color Applications Center (LCAC)  
Minolta Corporation  
101 Williams Drive  
Ramsey, NJ 07446

Tel: 888-473-2656 ext. 3544  
Fax: 201-825-4374  
email: [lcac@minolta.com](mailto:lcac@minolta.com)

### NEW ADVERTISING OPPORTUNITY!

The ISCC Board of Directors has initiated a new advertising policy for the Inter-Society Color Council News. Pre-paid color-related advertising will be accepted thirty days in advance of the publishing date. The rates are as follows:

\$ 100	business card-size ad
\$ 250	1/4 page ad
\$ 500	1/2 page ad
\$1,000	full page ad



Artwork must be publisher ready and will be returned within 30 days after publication. the publishers reserve the right to determine the acceptability of the advertising. There is a 20% discount offered for a yearly contract.

For further information contact: Tek Celikiz, ISCC News Editor or Cynthia Sturke, ISCC Office.

## RIT'S MUNSELL COLOR SCIENCE LABORATORY 1999 SUMMER INDUSTRIAL SHORT COURSE ANNOUNCEMENT

Rochester Institute of Technology's Munsell Color Science Lab presents its annual course, "**Principles of Color Technology for Material Systems**" June 7-10, 1999.

"Colorimetry and Color Measurement," June 7-9, 1999 will focus on the applications of colorimetry for industrial color control of materials. Key topics include spectrophotometry: principles, geometry selection, and methods of characterizing precision and accuracy; CIE colorimetry: derivation of colorimetry from XYZ through CIELAB; and tolerancing: CMC and CIE94 equations, deriving visual tolerances from historical pass/fail data, and optimizing L:c ratios. Additional topics include: terminology, color vision, color order systems, illuminant and observer metamerism, and color TQM concepts. This course is taught by Dr. Roy S. Berns, R. S. Hunter Professor of Color Science, Appearance, and Technology, and Dr. Mark Fairchild, Director, Munsell Color Science Laboratory.

"Instrumental Color Matching," June 10, 1999 will present techniques to successfully use computer colorant formulation systems in an industrial environment. This course will be taught by Ralph Stanziola, co-founder of Applied Color Systems and current President of Industrial Color Technology. Topics include: colorant identification via spectral analyses, additive functions of reflectance (Kubelka-Munk) and transmittance (Beer-Lambert), semi-quantitative production batch adjustments, principles of computer colorant formulation, methods to get the most out of your system, and a problem solving session. This is a great opportunity to benefit from Mr. Stanziola's extensive industrial experience.

These courses are highly beneficial to persons involved in the coloration of natural and synthetic materials such as paints, textiles, and plastics.

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"**Foundations of Color Management Systems**," will be held June 14-18, 1999. This is a five-day, intensive short course designed to teach the underlying principles for implementing color management. The course is divided into three sections: colorimetry, modeling imaging periph-

erals for device profiles, and color appearance models. Participants can participate in any or all of the sections. These foundations are incorporated into color management systems such as Postscript Level II, ICC, and KPCMS providing "plug and play" capabilities.

*Section 1, Colorimetry for Imaging*, (June 14) will be taught by Dr. Roy S. Berns, the R. S. Hunter Professor in Color Science, Appearance, and Technology. Topics include an overview of color vision and appearance, photometry, colorimetry mathematics, color measurement instrumentation, color space transformations, and color quality metrics.

*Section 2, Colorimetric Device Characterization*, (June 15-16) will be taught by Dr. Roy S. Berns. Topics include scanner colorimetry using multiple-linear regression and spectral estimation techniques; CRT colorimetry using the CIE technique; binary printer colorimetry for cluster dot, FM screening, and conventional rotated screen halftoning devices; continuous tone printer colorimetry using Kubelka-Munk theory; and the basics of building device profiles.

*Section 3, Color Appearance Models*, (June 17-18) will be taught by Dr. Mark D. Fairchild, Dir. of the Munsell Color Science Laboratory. Color-appearance models extend basic colorimetry, as typified by CIE tristimulus values, to the prediction of color matches and color appearance across widely varying viewing conditions. Topics include important aspects of human vision, color appearance terminology, color-appearance phenomena, derivation of color appearance models (including Nayatani, Hunt, RLAB, LLAB, CIELAB, and ATD), testing of color-appearance models, applications, and implementation.

The courses will consist of classroom lectures, demonstrations, laboratory sessions, and social times for informal interaction with other students and staff. Early registration is recommended. To pre-register contact:

Colleen M. Desimone, Coordinator Industrial Courses  
RIT Munsell Color Science Laboratory  
Chester F. Carlson Center for Imaging Science  
54 Lomb Memorial Drive, Rochester, NY 14623-5604  
Tel: (716)475-7189 Fax: (716)475-5988  
email: [CMD9553@rit.edu](mailto:CMD9553@rit.edu)  
WebSite at: [www.cis.rit.edu/research/mcsl/courses.html](http://www.cis.rit.edu/research/mcsl/courses.html)

## THE INTER-SOCIETY COLOR COUNCIL WELCOMES NEW MEMBERS

On October 1, 1998, the Board of Directors approved and welcomed to the Inter-Society Color Council:

Ms. A. Ufuk Agar	Purdue Univ. 1285 EE Bldg, Box 65, West Lafayette, IN 47907 tel: 765-494-3358
Ms. Anne Begin	Delphi Delco Electronics, One Corporate Ctr, M/C R231, Box 9005, Kokomo, IN 46904 tel: 765-675-9506
Mr. Grayland Daniels	Superior Printing Ink Co., Inc., 70 Bethune St., NY, NY 10014, tel: 212-741-3600
Ms. Susan Farnand	Eastman Kodak, 34 Mountain Rise, Fairport, NY 14450 tel: 716-726-3424
Ms. Karen L. Gunther	University of California, San Diego, Psychology-0109, 9500 Gilman, La Jolla, CA 92093 tel: 760-727-6459
Mr. Timothy P. Iott	Colwell, 200 Sixth St., Fort Wayne, IN 46808 tel: 219-424-2710
Ms. Barbara Kalis	Barbara Kalis Interior Design, 12244 SE 25th St., Bellevue, WA 98005, tel: 425-641-4214
Dr. Eileen Korenic	3M, 201-2E-03, St. Paul, MN 55144-1000 tel: 651-737-0069
Ms. Teri A. Kummer	Superior Printing Ink Co., Inc., 70 Bethune St., NY, NY 10014 tel: 212-741-3600
Dr. Surinder M. Maini	DuPont AFS, 5401 Jefferson Davis Hwy, Richmond, VA 23234 tel: 804-383-3900
Dr. Robert K. McMahan	McMahan Research Laboratories, Inc. 101 N. Columbia St., Ste. 600., Chapel Hill, NC 27514-3502 tel: 919-942-8825x223
Ms. Eloisa Ortiz Obando,	Ford, Carplastic, Box 1216, Laredo, TX 78042 tel: 011 52-8-369-2227
Mr. Frank O'Donnell	Sherwin Williams Company, Cleveland Technical Ctr, 601 Canal Road, Cleveland OH 44113 tel: 216-515-4810
Ms. Lorrie Pace	M-Tek, Inc. 1020 Volunteer Pkwy, Manchester, TN 37355 tel: 931-723-4122x292
Dr. Zygmunt Pizlo	Purdue Univ., Dept. of Psychological Sciences, W. Lafayette, IN 47907-1364 tel: 765-496-69430
Ms. Pamela S. Ray	Goldwell Cosmetics (USA) Inc., 981 Corporate Blvd, Linthicum, MD 20190 tel: 410-850-7555
Mr. Mark Sanitmauro	Benjamin Moore & Co., 360 Rt. 206, Flanders, NJ 07836 tel: 973-252-2563
Dr. Yap-Peng Tan	Intel Corporation, CH6-428, 5000 W. Chandler Blvd, Chandler, AZ 85226-3699 tel: 602-554-3554
Mr. Michael J. Young	Design Discoveries, Inc. 4920 E. 5th Ave., Columbus, OH 43219 tel: 614-231-1301
Mr. Shenbo Yu	Xionics Document Technology, Inc., 70 Blanchard Rd, Burlington, MA 01803 tel: 781-229-7131



## ASTM SYMPOSIUM ON FACTORS AFFECTING APPEARANCE

The January meeting of Committee E12 on Color and Appearance will be held at the Embassy Suites Hotel in Fort Lauderdale FL, January 26-28, 1999. A complete schedule of the E12 meetings is available on the ASTM website: "[www.astm.org](http://www.astm.org)" or from ASTM Staff Manager, Bode Buckley at: [bbuckley@astm.org](mailto:bbuckley@astm.org) or tel: 610-832-9740.

The E12.14 meeting will take place January 27 from 10:00 a.m. to 12:00 noon. This will be followed, after lunch, by a Symposium on Appearance arranged by Dr. Mary McKnight of NIST.

(continued on pg. 17)



**E12.14 AGENDA****CHEMICHROMICS USA '99**

The main topics for consideration at our meeting will be:

- o Defects as a subset of appearance.
- o Definitions.
- o What kind of standards do we want to write ?
- o Mini-Symposium: "Industrial Strength" Appearance Research

"Materials and products are being manufactured by many industries with new appearance properties. Words such as metallic, luster, glitter, sparkle and pearly are used to describe them. Surface properties such as texture, gloss, haze, distinctness-of-image and orange peel are also of interest. Traditional measurement techniques are not always capable of adequately characterizing all of these optical properties or correlating them with visual judgment.

This mini-symposium will address some of these issues by presenting research aimed at improving the fundamental understanding of factors affecting appearance, which, in turn, will support the development of measurement methods for characterizing these materials and products, as well as generating new standards. The Technical Program should have special appeal for anyone involved with appearance."

The invited speakers are noted as follows:

**Cal McCamy, Consultant in Color Science**  
*Geometric Aspects of Appearance and their Measurement.*

**James Ferwerda, Cornell University**  
*Physically and Perceptually Based Image Synthesis.*

**Barry Rubin, DuPont Company**  
*Predicting Carpet and Fabric Appearance from Fiber Geometry.*

**Theodore Vorburger,**  
**National Institute of Standards and Technology**  
*Measurements and Predictions of Light Scattering by Coatings.*

A three day conference and trade exhibition will be held bringing ChemiChromics together with leading academics and industrialists working at the cutting edge of the important field of high programme tech colours and functional materials. ChemiChromics USA'99 is a key event for managers and senior researchers working in the new business of technical marketing, and research functions of those businesses operating in the specialty chemicals, biological and medicinal, materials science and information technology sectors. In these and other sectors, colored molecules and materials exhibiting chromic phenomena are finding new and exciting outlets. New business opportunities abound as well as potential business for fine chemical manufacturers wishing to produce the highly specialized materials for these newer, low volume-high price businesses. The technologies and potential application areas, listed below, form the core of the scientific program in the ChemiChromics series of conferences, making these meetings quite distinctive on the world scene. ChemiChromics conferences offer a concentrated insight into the leading edge applications of color.

**Technologies**

- \* Electrochromism, photochromism, solvatochromism and thermochromism
- \* Electroluminescence, chemiluminescence and fluorescence
- \* Laser addressable materials
- \* Specialty pigments and dyes
- \* Liquid crystals
- \* Electro-optical chromophores

**Applications**

- \* Digital printing and packaging
- \* Medical, biological and sensors
- \* Security, safety and novelty outlets
- \* Imaging and displays
- \* Electronic and optical
- \* Energy

ChemiChromics USA'99 will follow the format of the previous meetings ChemiChromics'95 and '97 on color change chemistry, both held in the UK, and will comprise a conference, an exhibition for suppliers and service providers and an evening mixer. Contributors and delegates at the

previous meetings have included representatives from major academic institutions as well as from the following selection of companies: Amersham International, Bank of England, Charkit Chemical, BASF, Capricorn Chemicals, Ciba, Clariant Ltd, Courtaulds, Croda, Crompton & Knowles, Defense Research Agency, DSM Research, DuPont, Esprit Chemical, Gillette, Imation Research, Kodak, Lancaster Synthesis, LG Chemicals, L'Oréal, Luminex Corp, Thomas de la Rue, Unilever, and Zeneca. ChemiChromics 99 is a new event for the USA, and in co-operation with SOCMA is being staged to run alongside the important and successful INFORMEX exhibition. INFORMEX 99 takes place at the New Orleans Superdome from 25 - 27 January 1999. ChemiChromics commences at 12.30pm INFORMEX on 27 January at The Hyatt Regency, New Orleans (in the same complex as the Superdome) and concludes at 12.30pm on 29 January 1999. So why not attend both? If you would like to attend ChemiChromics 99 as an exhibitor or delegate, register online or contact Spring Innovations by e-mail or:

**Spring Innovations Ltd.**

185A Moss Lane, Bramhall,  
Stockport SK7 1BA England  
Tel +44 (0)161 440 0082  
Fax +44 (0)161 440 9127

**Jobs Wanted!**

This Section is intended to help ISCC members that are in need of, and are looking for employment. Here is an opportunity to use the resources at hand. There is no charge for this service, however, the restrictions are as follows:

1. This service is for ISCC members' use only.
2. No more than 50 words may be used to describe yourself. (Not including name, address and/or telephone number.)
3. If you are using a P.O. Box, you must supply a complete address.
4. No Agency representing member(s) is allowed.
5. Neither the ISCC News nor the the editors are responsible for any errors.
6. You must advise us in writing when you have obtained employment.

We hope this new section will be of value to you, the ISCC member. If you have any suggestions/criticisms, please send them to the editor. Let's make this work!

**CALENDAR**



**Please send information on Member-Body and other organization meetings involving color and appearance functions with dates, places, and information source to:**

**Cynthia Sturke**  
**ISCC Office**  
**11491 Sunset Hills Rd.**  
**Reston, Va 20190**

**tel: 703-318-0263 email: [iscc@compuserve.com](mailto:iscc@compuserve.com)**  
**fax: 703-318-0514 website: <http://www.iscc.org>**

**1999**

**ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications, Jan. 24-27, Embassy Suites, Ft. Lauderdale, FL., Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: [tbrooke@astm.org](mailto:tbrooke@astm.org)**

**ASTM COMMITTEE E-12 Color and Appearance, Jan 26-28, Embassy Suites, Ft. Lauderdale, FL Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: [tbrooke@astm.org](mailto:tbrooke@astm.org)**

**ISCC & TAGA ANNUAL MEETINGS, May 5-7, ISCC and May 2-5, TAGA Technical Conference, Westin Bayshore Hotel, Vancouver, B.C., Canada; Info: Prof. Bob Chung; Tel: 716-475-2722**

**SID 99, May 16-21, Society for Information Display, Info: SID Tel: 714-545-1526, email: [socinfodisplay@mcimail.com](mailto:socinfodisplay@mcimail.com)**

**ASTM COMMITTEE D-1, Paint and Related Coatings, Materials and Applications June 13-16, Omni Rosen Hotel, Orlando, FL; info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: [tbrooke@astm.org](mailto:tbrooke@astm.org)**

**ASTM COMMITTEE E-12, Color and Appearance, June 7-10, ASTM Headquarters, West Conshohocken, PA. Info: Bode Buckley, Tel: 610-832-9740 Fax: 610-832-1547 email: [bbuckley@astm.org](mailto:bbuckley@astm.org)**

**AIC MIDTERM MEETING**, 22-23 June 1999, Warsaw, Poland. Applications of Colorimetry in Industry and Design. For information: Organizing Committee: Tel: +48 22 620 5971 Fax +48 22 620 83 78.

**CIE, 24th SESSION**, June 24-30, 1999, International Commission on Illumination (CIE), Polish Technical University, Warsaw, Poland, Info: Session Secretariat - Fax: +48 22 660 5616, e-mail: CIE99@ee.pw.edu.pl, internet: <http://www.ee.pw.edu.pl/cie99>

**TAPPI**, Oct. 17-22, Technical Association of the Pulp and Paper Industry; Conference, Omni Durham Hotel, Durham, N.C, info: Lisa Archer, tel: 800-332-8686x 225

**OSA ANNUAL MEETING**, Optical Society of America, Santa Clara, CA, Info: OSA, tel: 202-223-0920,

**AATCC, INTERNATIONAL CONFERENCE AND EXHIBITION**, Oct. 12-15, American Association of Textile Chemists and Colorists, Conv. Center, Charlotte, NC, Information: Hilda McQueen, Tel: 919-549-8141; Fax: 919-549-8933; email: [mcqueen@aatcc.org](mailto:mcqueen@aatcc.org) <http://www.aatcc.org>

**IS&T/SID 7TH COLOR IMAGING CONFERENCE**, Nov. 14-17, Color Science, Systems & Applications, The SunBurst Resort Hotel, Scottsdale, Arizona. Tel: 703-642-9090 Fax: 703-642-9094 email: [info@imaging.org](mailto:info@imaging.org); website: [www.imaging.org](http://www.imaging.org)

## 2000

**ASTM COMMITTEE D-1**, Paint, and Related Coatings, Materials and Applications, Jan. 23-26, Hyatt Regency, New Orleans, LA Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: [tbrooke@astm.org](mailto:tbrooke@astm.org)

**ASTM COMMITTEE E-12** Color and Appearance, Jan 25-28, Hyatt Regency, New Orleans, LA, Info: Bode Buckley: tel: 610-832-9740; fax: 610-832-1547; email: [bbuckley@astm.org](mailto:bbuckley@astm.org)

**ISCC WILLIAMSBURG CONFERENCE**, Feb 20. 2nd Panchromatic Conference, Color in it's Surround; Williamsburg, VA. Info: Dr. Cynthia Brewer, Tel: 814-865-5072; Fax: 814-865-7943

**ISCC & CPMA ANNUAL MEETINGS**; April 16-18, ISCC and Color Pigments Mfg Assoc., Charlotte, N.C., info: Romesh Kumar, Tel: 410-823-2161

**SID 2000**, May 14-19, Society for Information Display Long Beach CA, Info: SID, Tel: 714-545-1526; Fax: 714-545-154 email: [socforinfodisplay@mcimail.com](mailto:socforinfodisplay@mcimail.com) www home page: <http://www.sid.org>.

**ASTM COMMITTEE D-1**, Paint and Related Coatings, Materials and Applications, June 11-14, Ascagua's Nugget, Reno, NV Info: T. Brooke, Tel: 610-832-9729; Fax: 610-832-9666; email: [tbrooke@astm.org](mailto:tbrooke@astm.org)

**ASTM COMMITTEE E-12** Color and Appearance, June 20-23, Sheraton Hotel, Toronto. Info: Bode Buckley: Tel: 610-832-9740; Fax: 610-832-1547; email: [bbuckley@astm.org](mailto:bbuckley@astm.org)

**AATCC INTERNATIONAL CONFERENCE AND EXHIBITION**, Sept. 12-20, American Association of Textile Chemists and Colorists, Benton Convention Center, Winston-Salem, SC, info: Hilda McQueen, Tel: 919-549-8141; Fax: 919-549-8141

**IS&T/SID 8TH COLOR IMAGING CONFERENCE**, Nov. 14-17, Color Science, Systems & Applications, The SunBurst Resort Hotel, Scottsdale, Arizona. Tel: 703-642-9090 Fax: 703-642-9094 email: [info@imaging.org](mailto:info@imaging.org); website: [www.imaging.org](http://www.imaging.org)

## 2001

**ASTM COMMITTEE E-12**, Color and Appearance, Jan 23-26, Embassy Suites, Ft. Lauderdale, FL Info: Bode Buckley, Tel: 610-832-9740; Fax: 610-832-1547; email: [bbuckley@astm.org](mailto:bbuckley@astm.org)

**ASTM COMMITTEE D-1**, Paint and Related Coatings, Materials and Applications, January 23-26, Info: T. Brooke, Tel: 610-832-9729; Fax: 610-83-9666; email: [tbrooke@astm.org](mailto:tbrooke@astm.org)

**ISCC/AIC MTG**, June 24-29, ISCC and Association Internationale de la Colour, Rochester Riverside Conv. Ctr, Rochester, NY; Info: Paula J. Alessi, Tel: 716-477-7673; Fax: 716-722-1116 email: [pjalessi@kodak.com](mailto:pjalessi@kodak.com)

## SUSTAINING MEMBERS

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Labsphere, Inc.  
Tel: 603-927-4266

Chromatics Color Sciences Intl, Inc.  
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David L. Spooner, rhoMetric Assoc., Ltd.  
Tel: 302-764-9045

Hunter Associates Laboratory, Inc.  
Tel: 703-471-687  
Minolta Corporation  
Tel: 201-934-5291

\*\*NEW SUSTAINING MEMBER: DuPont Automotive Products Tel: 248-583-8345\*\*

## ISCC MEMBER-BODIES

American Association of Textile Chemists and Colorists (AATCC)  
American Society of Interior Designers (ASID)  
American Society for Testing and Materials (ASTM)  
American Society for Photogrammetry and 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)  
Federation of Societies for Coatings Technology (FSCT)  
Gemological Institute of America (GIA)

Graphic Arts Technical Foundation (GATF)  
Human Factors & Ergonomics Society (HFES)  
Illumination Engineering Society of North America (IESNA)  
National Association of Printing Ink Manufacturers (NAPIM)  
Optical Society of America (OSA)  
Society for Information Display (SID)  
Society of Plastics Engineers, Color & Appearance Div.(SPE)  
Society for Imaging Science and Technology (IS&T)  
Technical Association of the Graphic Arts (TAGA)  
Technical Association of the Pulp and Paper Industry (TAPPI)

## OFFICERS 1998-2000

Position	Name	Address	email	Telephone	Fax
President	Dr. Michael H. Brill	Sarnoff Research Ctr. CN 5300, Princeton NJ 08543	mbrill@sarnoff.com	609-734-3037	609-734-2662
Pres-Elect	Mr. Jack Ladson	Dir. Color Technology, The Estee Lauder Companies, Inc. 411 Sinclair St., Bristol, PA 19007-1525	jladson@estee.com	215-781-1600	215-781-1789
Secretary	Mr. Rich Riffel	Hunter Associates Laboratory, Inc. 11491 Sunset Hills Rd., Reston, VA 20190	rriffel@hunterlab.com	703-471-6870	703-471-4237
Treasurer	Mr. Hugh Fairman	503 Bradley Court, Princeton, NJ 08540		609-430-1630	609-430-1618
Past-Pres.	Dr. Ellen C. Carter	Minolta Corporation 101 Williams Rd. Ramsey, NJ 07446	ecarter@minolta.com	201-934-5228	201-825-4374

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	Mr. James R. Keiser	DuPont Automotive Products, Detroit Colour Council 945 Stephenson Hwy, Troy, MI 48007-2802	keiserjr@sptyv4.dnet.dupont.com	248-583-8345	248-583-8316
	Dr. Cynthia A. Brewer	PSU Dept. of Geography, University Park, PA 16802	cbrewer@essc.psu.edu	814-865-5072	814-863-7943
1997-2000	Ms. Shashi Caan	Gensler Assoc. & Architects, 135 W. 70th St. New York, NY 10023		212-492-1400	212-492-1472
	Mr. David L. Spooner	rhoMetric Assoc., Ltd., 2918 N. Franklin St., Wilmington, DE 19802	rhomet@delanet.com	302-764-9045	302-764-5808
	Dr. Joanne C. Zwinkels	National Research Council of Canada Photometry & Radiometry Montreal Rd., M-36 Ottawa ON K1A 0R6, Canada	joanne.zwinkels@nrc.ca	613-993-9363	613-952-1394
1998-2001	Ms. Charla S. Haley	Techner PM, LLC Color Dev. Mgr., 1 Quality Circle, Clinton, TN 37716	chaley@techmerpm.com	423-457-6700	423-457-3012
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