

# Inter-Society Color Council *News*

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## ISCC ELECTION RESULTS:

President-Elect: Paula Alessi; Secretary: Dan Rich; Treasurer: Phil Hunter Directors (1990-1993): Sally Graves, Nancy Jo Howard, Romesh Kumar. It is unfortunate that we cannot elect all of the candidates for director since all of the nominees would serve with distinction. We very much appreciate the willingness of all the candidates to stand for election.

Number 324

March/April 1990

## THE 1991 ISCC GODLOVE AWARD

The Godlove Award is the most prestigious award bestowed by the Inter-Society Color Council to honor long-term contributions in the field of color. The Godlove Award was established in 1955 in memory of Dr. I.H. Godlove and is presented biannually, in odd numbered years, with the next award scheduled for presentation at the 1991 Inter-Society Color Council Annual meeting.

### *Nominations for the 1991 Godlove Award are now being solicited.*

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

A Godlove Award Nomination Form is enclosed with this mailing of the ISCC Newsletter. The past and present membership of the ISCC boasts a number of individuals deserving of this recognition but such an award requires *your* participation in the process. Please take the time to consider and to nominate a worthy candidate for this honor.

Feel free to copy the enclosed nomination form, if necessary. Requests for additional nomination forms and completed nomination forms should be directed to:

Joann M. Taylor  
Godlove Award Committee Chairman  
Tektronix, Inc.  
P.O. Box 500, M/S 50-320  
Beaverton, Oregon 97077  
Telephone (503) 627-4911  
FAX (503) 627-5502  
E-Mail (CSNET) joannt@tekirl.labs.tek.com

Joann Taylor

## FROM THE PRESIDENT

The winter ISCC Board of Directors meeting was held on January 19-20 in Fort Lauderdale, Florida. Since the Williamsburg Conference was held at the beginning of December, rather than as is usual in February, it had been decided to meet with the ASTM E-12 and D-1 committees because many ISCC Board members also attend these meetings. It was a happy happenstance that those groups were meeting in sunny Florida in January.

The ballots for new ISCC officers and board members were counted by a committee headed by the Secretary Terry Commerford. Of course, President-Elect Hugh Fairman will become president at the April annual meeting and the new board will begin serving at that time. Ms. Paula Alessi was elected as the new president-elect, Dr. Dan Rich will be the new secretary and Mr. Philip Hunter will remain as treasurer. The new board of directors members will be Ms. Sally Graves, Dr. Nancy Jo Howard and Dr. Romesh Kumar.

Each year I am distressed that only three of the excellent candidates for director can be elected. The Council is fortunate that such outstanding individuals agree to allow their name to be put forward as candidates for director. The nominating committee, chaired by Past President Allan Rodrigues, selected individuals every one of whom would be an addition to the Board of Directors. It is difficult to see any of them not elected. The practice of nominating more people than can be elected gives the membership more choice, but it also means that fine people must be passed over. I can only hope they will agree to let their names be put forward again in the future.

This is also my last column as president since this copy of

the ISCC News should reach you shortly before the annual meeting. It has been an honor and pleasure to serve as your president for these two years. Not only do I believe that the Inter-Society Color Council is an exceptional organization, but the particular individuals I have served with on the board and those who chair the standing committees are efficient and reliable, and a pleasure to know. I inherited from Allan Rodrigues a well run organization that had begun to incorporate several innovative changes, such as the new Interest Groups; and I am handing the gavel over to another outstanding leader in Hugh Fairman. It is especially satisfying to leave an office you believe is important to someone in whom you have great confidence. Of course, I will continue to serve as past president for two more years and I hope to be of some assistance to Hugh, as Allan has been to me.

Volunteer organizations make a major contribution to our national life and being active in them also adds richness to the individual's life. Mr. William Vogel approached me in Williamsburg and volunteered to become more active in the ISCC. I hope others will follow his example and let Hugh know when they would like to take a more active part in the Council. It is not desirable for the same group of people to hold all the important positions in any organization, because fresh ideas are always needed. So often a few people become overworked while those who could gain most from participation are left out. The difficulty is that the president, who must fill committee positions, may not know you or may not know you would be willing to be more active.

*Joy Turner Luke*

## NEWS FROM MEMBER BODIES:

### American Society For Testing and Materials (ASTM)

#### *Fred W. Billmeyer Receives 1990 ASTM Award of Merit*

Committee E-12 on Appearance of Materials nominated Fred W. Billmeyer, Jr. for the 1990 ASTM Award of Merit. The announcement of his selection was made on January 17, 1990, and the actual award is expected to be presented to Billmeyer by Chairman of the Board, Albert J. Bartosic, during the E12 Meeting in June in San Francisco, California.

The citation is for outstanding leadership in development or revision of ASTM standards dealing with optical or

appearance properties, such as color, gloss, and haze, and for meritorious publications in these fields. Billmeyer is principal author of four current standards for ASTM as well as five more proposed standards that are moving through the approval process. He has published several technical papers in ASTM journals, as well as numerous related articles in other journals. Billmeyer is a long time member of ASTM committees D-1 (Coatings), D-20 (Plastics), as well as E-12 (Appearance).

#### *Measurement of Metallic and Pearlescent Colors*

The Task-Group on Measurement of Metallic and Pearlescent Colors (E-12.03.02) met on January 24, 1990, in Ft. Lauderdale, FL. After calling the meeting to order, Chairman Allan

Rodrigues reviewed the scope of the task group which had been agreed to at the 7/29/89 Planning Meeting. He then reviewed the new developments in metallic measurements, specifically a paper given by R. Gottenbos at the 1989 ISCC Williamsburg Conference. A methodical study showed good correlation between visual metallic color difference judgements and instrumental measurements at three angles, optimized by modifying a commercial goniospectrophotometer to read at 25, 45 and 110 degrees from specular.

The task-group's work had been divided among three working groups. The Working Group for Test Sample Selection, chaired by Jacqui Welker, submitted a detailed report, which was briefly reviewed. The report is quite comprehensive, recognizing that final sample selection will depend on the

experimental design.

Chairman Bill Venable of the Working Group on Instruments for Test Sample Measurement listed characteristics for comparing instruments. He will survey members and devise simple experiments to characterize available instruments to make our final choice.

The Working Group on Experimental Design required a better definition of the problem before proceeding. Its Chairman, Cal McCamy led a discussion to agree upon the simplifying assumptions to be used in initial experiments. Based on these assumptions, the working group is to meet on February 8, 1990 to design the preliminary experiment.

The Task-Group will next meet on April 27, 1990 in Cleveland. We expect that some experimental results will be available then. *Allan Rodrigues*

### **American Association of Textile Chemists and Colorists (AATCC)**

The AATCC Technical Manual/1990 includes AATCC Test Method 173-1989: CMC: Calculation of Small Color Differences for Acceptability. This test method was developed by AATCC Committee RA36 and is based on British Standard Method BS 6923:1988.

### **The Color Association of The United States (CAUS)**

CAUS has a new address: 409 WEST 44TH STREET New York, NY 10036 Telephone Number is: (212) 582-6884.

### **Federation of Societies For Coatings Technology (FSCT)**

#### ***Ruth Johnston-Feller Receives 1989 Heckle Award***

Ruth Johnston-Feller received the 1989 George Baugh Heckel Award at the annual meeting in New Orleans, Louisiana, for her outstanding service to the Federation. The plaque is presented each year to the individual whose contributions to the general advancement of the Federation's interest and prestige have been outstanding.

Mrs. Johnston-Feller has given

many years of dedicated service to the Federation. A former member of the Board of Directors, she has served as a member of the Publications Committee, the Professional Development Committee, and the Editorial Review Board of the Journal of Coatings Technology, and continues to work on the Definitions Committee. She has served for several years as a member of the Board of Trustees of the Paint Research Institute.

Much of her service is associated with color science. For many years she was Chairman of the Federation's ISCC

Committee and Chairman of the FSCT delegation to the Inter-Society Color Council, as well as Chairman of the Bruning Award Committee. She coordinated the work of the ISCC Committee of the Federation in contributing definitions of more than 400 color terms in the Paint/Coatings Dictionary, and a section that was published separately as the Glossary of Color Terms. She assisted the FSCT Annual Meeting Program Committees. She is past Chairman of the Problems Committee of the ISCC.

### ***Symposium on Color and Appearance Instrumentation, April 25-26, keyed to the theme "Combining Appearance and Color"***

A symposium on instrumentation for measuring color and appearance in the coatings industry, to be held April 25-26 at the Cleveland Airport Marriott, Cleveland, Ohio, will feature paper presentations and "hands-on" workshop sessions at which the latest color measurement equipment and software will be displayed.

The Symposium on Color and Appearance Instrumentation is being sponsored jointly by the Federation of Societies for Coatings Technology and the Inter-Society Color Council.

The Symposium will immediately follow the ISCC Annual Meeting, also being held at the Cleveland Airport Marriott, April 22-24. A special "bridge" session on April 24 will serve to tie in the back-to-back events.

Programming will focus on discussions of new instruments, optical models, and computer simulation techniques which are opening the door to better understanding of the complex appearance phenomenon. The first day-and-a-half of the symposium will be devoted to morning and afternoon general sessions. Each will be followed by three concurrent workshops; two will feature equipment displays, the third will be a tutorial. Registrants will rotate from one workshop to the next until all have been attended. A general session will conclude the symposium on the final afternoon.

The workshops are designed to offer a working meeting environment, and registrants are invited to bring samples with them for evaluation. Open time will be available for those wishing to pursue additional inspection of equipment on display and for discussions with representatives from the equipment manufacturers.

General Chairman for the symposium is Ralph Stanzola, of Industrial Color Technology, Neshanic Station, NJ, who chairs the Federation's Inter-Society Color Council committee.

Program sessions are under the direction of Dr. Romesh Kumar, of Hoechst Celanese Corp., Coventry, RI. Arrangements for the workshops and instrumentation displays are being handled by Charles Leete, of Collaborative Testing Services, Inc., Herndon, VA. James Grady, of CIBA-Geigy Corp., Madison Heights, MI and Jacqui Welker, of PPG Industries, Inc., Cleveland, OH, are in charge of programming for the ISCC Annual Meeting and the "bridge" session.

Complete program information and registration/housing forms for the Symposium on Color and Appearance Instrumentation are available from Federation of Societies for Coatings Technology, 1315 Walnut Street, Suite 832, Philadelphia, PA 19107 (215) 545-1506.

*FSCT News Release*

## NEWS FROM GRAPHIC ARTS TECHNICAL FOUNDATION

### GATF Announces Recipients of Distinguished Reed/Berber Awards

Dr. William D. Schaeffer and Constance U. Greaser are the 1989 recipients of the distinguished Robert F. Reed Technology Medal and the Naomi Berber Memorial Award respectively. Dr. Schaeffer is retiree director of the Graphic Arts Technical Foundation (GATF) Research Department. Ms. Greaser is the head of publications at the RAND Corporation.

Outgoing Society chairman Dr. Burke Stanard made the announcement at the Reed/Berber Awards Banquet during the GATF Annual Membership Meetings.

"The Illustrious Reed/Berber awards are the highest honor that the Society can bestow", Stanard said. "In so doing, the Society asks the industry to recognize two individuals who personify the 'spirit' of the awards' namesakes by their consistent, ongoing contributions to the growth and health of the industry and, in this case of these individuals, also our planet."

Stanard added that the awards perpetuate the memories of two exceptional industry greats, Robert F. Reed, GATF's first research director, respectfully known as the "Dean of Lithography", and Naomi Berber, longtime administrative director of GATF. Considered the "First Lady of the Foundation", Berber was also the first woman elected to the Society.

The Society of Fellows presents the Reed/Berber Awards annually. The Society is an honorary organization of industry leaders affiliated with GATF.

The letters nominating Dr. William D. Schaeffer said that he was a most fitting successor to Dr. Robert F. Reed, the award's namesake. For his more than forty years of industry research, Schaeffer has been termed an "industry icon", internationally noted for scientific achievements and contribution to the printing and publishing industries. He is also recognized and respected for the credibility he commanded for the industry in environmental regulatory arenas.

Dr. Schaeffer's industry career began in 1947 when he was group leader and conducted pigment studies at Godfrey L. Cabot, Inc., in Boston Mass. He later served as research director of the National Printing Ink Research Institute (NPIRI) and associate director of the Center for Surface Coatings Research at Lehigh University, Bethlehem, Pa.

Dr. Schaeffer joined GATF in 1969 as research director. In this capacity, he guided the development of GATF research and spearheaded the activities of the Environmental Conservation Board of the Graphic Communication Industries for twenty years.

He served in several capacities in the Inter-Society Color Council (ISCC), the International Association of Research Institute for the Technical Association of the Pulp and Paper Industry (TAPPI), and the Research and Engineering Council of the Graphic Arts Industry, Inc. He is also an active member of Sigma Xi (National Scientific Research Honor Society), the American Chemical Society, the American Society of Testing Materials, and the Air and Waste Management Association.

Dr. Schaeffer has published over fifty technical papers and holds three patents.

In recognition of his achievements, Dr. Schaeffer was awarded the 1980 Craftsmen Award by the National Association of Printers and Lithographers, the 1982 Elmer G. Voight Award by the Education Council of the Graphic Arts Industry, Inc., and the 1989 Honors Award by the Technical Association of the Graphic Arts. He was also elected to the NAPL Soderstrom Society and the GATF Society of Fellows.

## ILLUMINATING ENGINEERING SOCIETY OF NORTH AMERICA (IES)

IES recently announced publication of "The IES Recommended Practice for the Lumen Method of Daylight Calculations". This document provides a simple procedure for predicting interior daylight illumination from skylights and windows. The Practice is based on the lumen method for calculation of interior illumination through the use of coefficient of utilization tables. The lumen method of sidelighting has been completely updated. The lumen method of toplighting has been improved by replacing room ratios with room-cavity ratios and by using diffuse and direct skylight transmittance to obtain more accurate results. The new coefficient of utilization tables include more room sizes and vertical blinds.

For additional technical information telephone John Briggs at (212) 705-7927. The price of the Practice is \$25 to nonmembers of IES. To order a copy write Publication Sales Department, 345 East 40th Street, New York, New York 10017 or telephone (212) 705-7925.

## ISCC MEMBERSHIP UPDATE

### New Members

Mr. Mark Bronkalla  
W302 N1201 Maple Avenue  
Waukesha, WI 53188

Dr. Scott A. Burns  
University of Illinois  
at Urbana-Champaign  
104 S. Mathews #117  
Urbana, IL 61801

Ms. Caryl Dennis  
Rainbows Unlimited  
1245 Palm Street N.  
Clearwater, FL 34615

### Color Interest

*Interested in color video image capture and printing systems, in particular the printing of images with equivalent quality to CRT images. Employed at CTX Camtronix.*

*Research in colorimetry, matrix R, fundamental color space and the Munsell Color System.*

*Teaching services in colorology.*



**New Members**

Mr. Ian Elliot  
Skyline Products  
495 Territorial Rd  
Harrisburg, OR 97446

Mr. S. T. Greer  
S. T. Greer Associates, Inc.  
6001 S. King's Hwy.  
Ocean Lakes #211  
Myrtle Beach, SC 29575

Mr. Lyle Griffin  
Micrografx, Inc.  
1303 Arapaho Road  
Richardson, TX 75081

Mr. Tack Kim  
DuPont Design Tech., Inc.  
3100 Patrick Henry Drive  
Santa Clara, CA 95054

Mr. Robert J. Luciano  
RIT Box 810  
25 Andrews Memorial Dr.  
Rochester, NY 14623

Mrs. Jacqueline Montgomery  
F.I. T. Design Laboratory  
227 W. 27th St. Rm E323  
New York, NY 10001

Mr. Robert Oldchurch  
1680 North Hwy. 101, #11  
Levcardia, CA 92024

Mr. Dan Schinasi  
Minolta Corporation  
101 Williams Drive  
Ramsey, NJ 07450

Mrs. Harriet K. Sheman  
Armstrong World Industries  
P. O. Box 3511  
2500 Columbia Avenue  
Lancaster, PA 17604

Mr. Mike Stokes  
381 W. Squire Drive #6  
Rochester, NY 14623

**Color Interest**

*Works on silkscreen printing, providing quality control services. Interested in color formulation of printing inks.*

*AchS, FSCT. Provides manufacturing and formulation services for coatings, paints, and plastics. Particularly interested in formulation and manufacturing.*

*Director of Research and Development at Micrografx. Interests include color gamut mapping, reproduction of color using PC graphics software, color models and standardization.*

*Printing*

*Student. Interested in color reproduction from a CRT to hard-copy, and office site color copiers.*

*With the Curatorial Association at F.I.T. where she gives color workshops to various design and merchandising students.*

*Interested in color theory and mathematics, the application of group theory, topology and dynamic models to emulate differences of hue, and a symmetric color space.*

*ATSM. Color measuring instrumentation.*

*Color trends for interior design.*

*Graduate student at RIT. Provides research services in the field of color reproduction for Stokes Imaging Services. Interested in color reproduction in multiple device systems.*

**New Members**

Ms. Jacqueline Weseloh  
Weseloh Design, Inc.  
3 Corporate Park, Suite 270  
Irvine, CA 92714

Dr. Heino Widdel  
Forschungsinstitut für  
Anthropotechnik  
Neuenahrerstr. 20  
5307 Wachtberg-Werthhoven  
Federal Republic of Germany

Mr. Daniel J. Wilverding  
306 Orange Avenue  
Cranford, NJ 07016

**Color Interest**

*Works with textiles, paint, and ceramics. Interested in color as it relates to human reactions/emotions in the workplace.*

*Provides research services for electronic display products. Particularly human engineering problems in the use of color. Interested in design of electronic color displays.*

*Provides quality control services on paint products for AT&T Technologies. Interested in understanding and keeping abreast of color development and changes.*

**Address Corrections**

Mr. Hilton E. Brown  
826 N. Jefferson St.  
Wilmington, DE 19801-1432

Ms. Joyce S. Davenport  
1310 Ritchie Court Apt 3A  
Chicago, IL 60610

Dr. Jack Hsia  
NIST  
Bldg. 220, Rm. B-306  
Gaithersburg, MD 20899

Dr. Peter K. Kaiser  
York University  
4700 Keele Street  
North York, Ontario  
Canada M3J 1P3

Ms. Sheena D. Marsh  
Allsteel Inc.  
Allsteel Drive  
Aurora, IL 60507-7917

Ms. Judith Straeffler  
4421 Hunt Club Dr. Apt 1C  
Ypsilanti, MI 48197

Ms. L. Carol Tamosino  
SheLyn, Inc.  
1108 Grecale St.  
Greensboro, NC 27408-8725

Ms. Wendy Coker  
5 Wimorne Court  
Bayswater North Victoria 3153  
Australia

Mr. William D. French, Exec.  
Dir., American Society for  
Photogrammetry and  
Remote Sensing  
5410 Grosvenor Lane, Suite 210  
Bethesda, MD 20814-2160

Mr. Joseph C. Koreck  
Morton International  
2910 Waterview  
Rochester Hills, MI 48309

Ms. Ann C. Laidlaw  
SheLyn, Inc.  
1108 Grecale Street  
Greensboro, NC 27408-8725

Dr. Arlene Quint  
1201 Elmridge Avenue  
Baltimore, MD 21229

Dr. Joanne M. Taylor  
17890 NW Deercreek Court  
Portland, OR 97229-3060

## RICHARD HUNTER TURNS EIGHTY

Eighty years ago today,  
In a place not very far away,  
A child was born who grew to be  
The father of colorimetry.

His name was Richard Sewall Hunter:  
A pleasant boy who was never a grunter!  
Son of a weatherman and a teacher of art,  
No wonder he turned out so creative AND smart!

In twenty-seven, when he was still green,  
He took a job with a magazine;  
But the work was hard and the pay was low:  
After expenses he had nothing to show.

So his mother advised him to take an exam  
For civil service entry, and - WHAM!  
The rest is history, as you can guess:  
He got a job at the NBS!

Then the NBS was the place to be:  
Now its just NIST.

It began quite well, to say the least,  
With Dr. Judd and Mr. Priest.  
They got along just famously:  
They talked about the world we see.

Richard worked on optics and studied light,  
And took more classes in the school at night.

But the Great Depression soon was felt,  
And with the election of Roosevelt,  
Though the staff at NBS was cut,  
The door was fortunately not shut.

Instead, the Bureau let him stay,  
And so he worked there, without pay.  
Through times of trouble, toil and tears  
He triumphed with some great ideas.

His first invention, which made him happy,  
Was a reflectometer that he described to TAPPI.  
He'd remember this for ever more  
Though then he was only twenty-four.

Then Richard met Dr. Henry A. Gardner,  
With whom he would become a partner.  
Soon these words did Gardner toss:  
"Richard, we need to measure gloss".

And so it was, in those early days;  
Measuring appearance in many ways.

In nineteen forty he changed his life,  
For that was the year that he took a wife.  
Twas at a church picnic that they first met  
Her name: it was Elizabeth.

For her, it wasn't love at first sight,  
But she recognized that he was bright.  
In fact, she had a date with another,  
Who just happened to be... Richard's brother.

But she took to Richard after a while,  
And soon they were walking down the aisle.  
And then along came Phil and Paul -  
My word! - It seemed they had it all.

Then in nineteen fifty two  
Richard started something new.  
He founded his own company  
Solving problems with L, a and b.

The times back then were tough, for sure,  
But Elizabeth soon would find the cure:  
"Charge more! Charge more, and raise the price!  
I'm tired of eating beans and rice."

In fifty-six a break came their way.  
Proctor and Gamble were willing to pay  
For instruments to measure soap  
In shades from ivory to taupe.

A price was set, they said "OK".  
And HunterLab was on its way.  
In thirty years, the Lab would grow  
Into the company we now know.

A lifetime Fairfax County resident,  
Richard was HunterLab's first President  
From the company's foundation  
Till the title passed to a close relation.

But Richard might have been content  
Just working as a smart inventor.

In seventy-five he wrote the book,  
And it became the place to look  
For the history of Isaac Newton's prism  
To the index of metamerism.

You are eighty years of age today,  
And eighty years from now they'll say:

"The world, because of Hunter's vision,  
Can measure color with more precision."

## COLOR RESEARCH AND APPLICATION:

**In This Issue- Vol. 15  
April, 1990**

Before 1977 the concern for atmospheric visibility was usually related to transportation safety, either aviation or military interests. In these cases the interest was generally when visibility was limited. However, the Clean Air Act Amendments of 1977 required protection of visibility in national parks and certain other wilderness areas. In this case it is necessary to assess and remedy very small changes in very good visibility. Ronald C. Henry designed a visual colorimeter expressly for the purpose of measuring color perception in the atmosphere. In the article, "A Visual Colorimeter for Atmospheric Research", he and his co-author, Luis Matamala describe the design, calibration, and performance of the visual colorimeter. Eventually, this colorimeter will be used to quantify atmospheric conditions ranging from city smog to pristine mountainous vistas.

It would seem that everyone is concerned about his own appearance, and no one likes to appear in a bad light. But what is a "bad" light? Rea, Robertson, and Petrusic hypothesize that the most important factor in determining a person's preference for one type of fluorescent lamp over another is the way in which it renders the colour of his or her own skin. In "Colour Rendering of Skin under Fluorescent Lamp Illumination", the authors investigate this hypothesis. They report the results of several experiments which were designed to establish whether observers could distinguish reliably between lamp types on the basis of skin colour, to determine whether discrimination is better when viewing skin than when viewing other targets, and to gain some preliminary data on skin-colour rendering preferences.

In April of last year (Vol. 14, Issue 2), Jyn-Ping Hsu and Tsao-Hung Wei described a novel technique for classifying colors through the use of fuzzy statistical experiments. In this issue

## RIT TO OFFER COLORIMETRY COURSE IN JUNE

Rochester (N.Y.) Institute of Technology's Munsell Color Science Laboratory will present its annual industrial short course on the quantitative measurement and specification of color in June.

The program, "Colorimetry: An Intensive Short Course for Scientists and Engineers", will be offered June 12 to 14, 1990. Early enrollment is recommended.

Directing the program will be Dr. Roy S. Berns, director of the Munsell laboratory and the Richard S. Hunter Professor of Color Science, Appearance, and Technology. The Munsell Laboratory, located in the new Chester F. Carlson Center for Imaging Science on the RIT campus, is considered the best-equipped academic laboratory in the country for color measurement.

The in-depth short course provides fundamental information about color science and engineering required to

understand and make effective use of colorimetric instrumentation, theory, and practice.

Topics include color vision; color appearance; a detailed derivation of the CIE system of colorimetry; physics of objects and light sources; accurate methods of spectrophotometry; standardization of optical radiation; colorimetry for quality control, standardization and specification; and visual and instrumental color tolerancing.

The course is beneficial to persons involved in industries that include coating, textiles, polymers, reprographics and electronic imaging.

For further information, contact Colleen McCabe, Munsell Color Science Laboratory, Rochester Institute of Technology, Chester F. Carlson Center for Imaging Science, P.O. Box 9887, Rochester, NY 14623-0887 or Telephone (716) 475- 7189.

*R.I.T. News Release*

Shiojenn Tseng joins with Hsu and Wei to illustrate the use of membership functions of surface colors in the color selection procedure in product design. In the article "Quantifying Qualitative Relations about Colors through Fuzzy and Statistical Operations", colors are associated with feelings such as warm, soft, and heavy. The resulting membership functions are considered for designing several electrical appliances such as air conditioners or personal computers.

Systematic collections of color chips, which have been available since the beginning of this century, are used by architects, designers, and all those who select colors for any purpose. The color imagined must be specified before it is forgotten. Even though collections contain hundreds of samples, often the desired color is not included. By using visual interpolation, a set of 1,000 colors allows 100,000 colors to be visualized and specified. However, visual interpolation is not exact. Gunter Doring determines the accuracy with which experi-

enced people can interpolate notations in DIN, Munsell and NCS color atlases in "Colour Notation by Visual Interpolation in Colour Order Systems: How Accurate Is It?"

When a designer, decorator, or other user of color atlases looks at the selection of color chips, the assumption is made that that specification given accurately portrays the chip he is seeing. Accurate visual interpolation between colors requires that the atlas colors be correctly specified or the specified colors be correctly rendered. In their article "The Accuracy of the NCS, DIN, and OSA-UCS Colour Atlases", N. S. Smith, T. W. A. Whitfield, and T. J. Wiltshire compare the actual and aim coordinates of samples in NCS, DIN, and OSA-UCS color atlases. After examining approximately 2500 samples, the production errors in the manufacture of the color atlases are determined.

*Ellen C. Carter, Editor,  
Color Research & Application*

## THE COLOUR GROUP OF GREAT BRITAIN

### Contents of the last two issues of *DIE FARBE*:

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#### ISCC ANNUAL MEETING/ SCAI CONFERENCE, Apr. 22-26

Airport Marriot, Cleveland, Ohio. Information: James Grady (313) 855-2353, Jaqui Welker (216) 671-0050 ext. 2404, Romesh Kumar, (401) 823-2161.

#### COLOR MARKETING GROUP SPRING MEETING, Apr. 29- May 1

Royal York Hotel, Toronto, Ontario, Canada. Information: Nancy Burns, (703) 528-7666.

#### CORM 90, May 8-10

Rochester Institute of Technology, Rochester, New York. Information: Dr. Roy Berns, Munsell Color Science Lab., RIT, P.O. Box 9887, Rochester, New York. (716) 475-2230.

#### SID 90, May 14-18

The Society for Information Display International Symposium, Seminar, and Exhibition, will be held at Baily's Grand Hotel, Las Vegas, Nevada. Information: Howard L. Funk, (914) 765-7384.

#### SPSE 43RD ANNUAL CONFERENCE, May 20-25

Rochester Institute of Technology Center for Imaging Science, with housing at the Holiday Inn-Rochester South, Rochester, New York. Information: Pat Forness, (703) 642-9090.

#### OSA TOPICAL MEETING, June 11-13, 1990

The Optical Society of America Topical Meeting on Light and Color in the Open Air, Georgetown University Conference Center, Washington, District of Columbia. Information: OSA, (202) 223-8130.

#### RIT COLORIMETRY COURSE, Jun. 12-14

An intensive course for scientists & engineers at Rochester Institute of Technology, Rochester, New York. Information: Colleen McCabe, (716) 475-7189.

#### ASTM COMMITTEE D-1 ON PAINT, Jun. 17-20

Hyatt Regency Hotel, Union Square San Francisco, California. Information: David Bradley, (215) 299-5504.

#### ASTM E-12 ON APPEARANCE, Jun 18-20

San Francisco, California. Information: Sharon Kauffman, (215) 299-5599.

#### IES ANNUAL CONFERENCE, Jul. 29-Aug. 2

Omni Inner Harbor Hotel, Baltimore, Maryland. Information: Diane Darrow, (212) 705-7269.

#### AIC INTERIM MEETING, COLOR MEASUREMENT, Sep. 3-5

Color Instrumentation, Federal Institute for Materials Science and Testing (BAM), Berlin, Federal Republic of Germany. Information: Prof. Dr. Heinz Terstiege, BAM, Unter den Eichen 87, D-1000 Berlin 45, FRG.

### CALENDAR

Please send information on Member Body and other organization meetings involving color with dates, places, and information source to: Harry K. Hammond, III

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#### INTERNATIONAL SYMPOSIUM AND EXPOSITION, Feb. 11-16

SPSE & SPIE Symposium on Electronic Imaging Devices and Systems '89, Santa Clara Convention Center, Santa Clara, California. Information: Pam Forness, (703) 642-9090.

SPSE 6TH INTERNATIONAL SYMPOSIUM, Feb. 19-21  
Photofinishing Technology and Marketing, Las Vegas, Nevada.  
Information: Pam Forness, (703) 642-9090.

#### NATIONAL LIGHTING CONFERENCE, Apr. 8-11

Robinson College, Cambridge, England, Information: Ms. K. Phillips, NLC Organizer, CIBSE Lighting Division, 222 Balham High Road, London SW12 9BS, Tel. 01-675-5211, ext.213.

**COLOR MARKETING GROUP FALL MEETING,****Sep. 23-25**

Hyatt Regency San Antonio, San Antonio, Texas. Information:  
Nancy Burns, (703) 528-7666.

**SPSE 6TH INTERNATIONAL CONGRESS, Oct. 21-26**

Advances in Non-Impact Printing Technologies with Exhibit,  
Orlando, Florida. Information: Pam Forness, (703) 642-9090.

**USNC/CIE ANNUAL MEETING, Oct. 28-30**

U.S. National Committee of CIE, Keller Conference Center,  
The Pennsylvania State University, University  
Park, Pennsylvania. Information: Dr. Craig Bernecker,  
(814) 863-2041.

**FSCT, Oct. 29-31**

Federation of Societies for Coatings Technology, 68th Annual  
Meeting and 55th Paint Industries's Show, Convention Center,  
Washington, District of Columbia.  
Information: (215) 545-1506.

**OSA ANNUAL MEETING '90, Nov. 4-9**

Boston, Massachusetts. Information: Optical Society of  
America, 1816 Jefferson Place, N.W., Washington, D.C.  
20036. (202) 223-0920.

**1991****AIC INTERIM SYMPOSIUM, COLOUR & LIGHT, Jun.****26-28**

Sidney Australia. Information: The Colour Society of Australia,  
P.O. Box 63, Concord West, N.S.W. 2138, Australia.

**CIE 22ND SESSION, Jul. 2-11**

International Commission On Illumination, Melbourne,  
Australia. Information: Dr. J. D. Schanda, Central Bureau, A-  
1030 Vienna, Kegelgasse 27 Austria, or Dr. Jack Hsia,  
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