

## AIC 12<sup>th</sup> Congress 2013, Newcastle, Great Britain



The AIC 12<sup>th</sup> Congress was held in Newcastle, Great Britain on 8- 12 July 2013 at The Sage Gateshead on the south bank of River Tyne. The congress was very well organised by the Colour Group of Great Britain. The congress turned out to be a very successful meeting both from a scientific as well as from a social point of view. 538 people registered in advance (600 individual delegates in total - though not all for the whole week) from 48 different countries.

We had a full 5 days schedule with 203 oral presentations by both engaging Keynote speakers as well as interesting paper presentations and we could study 270 posters. We could also enjoy the different Study Group Meetings. A congress to be remembered!

*Photo: Stephen Westland and Lindsay McDonald handing over the AIC banner to Carlos I. Aguirre-Velez, the organiser of AIC 2014 watched over by Berit Bergström.*

There is an updated book of abstracts for AIC2013 that is available for free download from <http://www.aic2013.org/>. To access the abstracts go to the web page and right-click on Book of Abstracts in the Downloads section (right-hand side of the page).

### Next AIC Executive Committee

At the AIC General Assembly held at the AIC 12<sup>th</sup> Congress 2013, the election of the next AIC executive committee for the term 2014-2016 was conducted. According to the results of the election, the executive committee will be composed of:

President:	Javier Romero	Spain
Vice President:	Nick Harkness	Australia
Secretary/Treasurer:	Tien-Rien Lee	Taiwan
Ordinary members:	Gabriela Nirino	Argentina
	Jin-Sook Lee	Korea
	Maria-João Durão	Portugal
	Nancy Kwallek	USA
Past President:	Berit Bergström	Sweden

Paula Alessi, USA and Frank Rochow, Germany will be the Auditors of the AIC.

## AIC Judd Award 2013: Citation by Paula Alessi



I am incredibly humbled and honored to be giving this citation for Dr. Roy S. Berns as he receives the 2013 AIC Deane B. Judd Award. My dear friend Roy, thank you so much from the bottom of my heart for bestowing this honor upon me.

When I was first asked to do this, I was struck with both excitement and fear. Excitement because in all my years of association with AIC, I have been involved in many Judd Award ceremonies serving many different capacities, but this one is the most special. I am excited beyond belief to

be giving the citation for my best friend in the international color science world. I am scared out of my mind because I am afraid that I might get a little too carried away. So please allow me to put my fears aside as I tell you about my very good friend, Roy with the greatest sense of pride while we follow his journey from color science PhD to multi-faceted color science scholar and expert in 2013 as he receives this Award.

First it is important to remember that the AIC Deane B. Judd Award is to recognize work of international importance in the fields of color perception, color measurement, and/or color technology. The man we are honoring today, Dr. Roy S. Berns, has led a professional life in the international color community that embodies the true meaning of the prestigious Judd Award. His contributions do not just fall into one area. His situation is unique in that his contributions have international acclaim as they cover a diverse array of color science topics. We are honoring Roy today for his accomplishments in the areas of color science education, color difference formulae development, spectral-based imaging systems, total appearance measurement, and digital rejuvenation of precious works of art. All of these accomplishments have had a significant global impact.

So let's start first with his accomplishments in the area of color science education. His contributions began under the most tragic circumstances as he was appointed successor to the deceased Dr. Franc Grum at the Munsell Color Science Laboratory at the Rochester Institute of Technology (RIT). The tragic untimely loss of Franc was devastating to the entire color science community, but the person who felt it the most was Roy. I can recall a conversation with him about his fears of being thrust into this leadership role after having received his PhD before his mentorship with Franc was completed "Can I do it?" "Am I ready?" he asked. This was 1985, a time when the world was ripe for color science education, a time when very few universities offered a practical and applied education in a topic such as color science. So my answer to him for both of these questions was a resounding "YES!" "Yes you are ready!" and "Yes you most certainly can do it!" Roy immediately embraced the leadership role as he became the Richard S. Hunter Professor. So here it is 2013 and Roy is still teaching. His drive to continue as a color science educator for all these years came from the one thing that he treasures most – his students! They are all ages from all walks of life. Yes there are graduating seniors in pursuit of their master's or PhD degrees, but there are also many adults who went back to school to follow their dream or take a chance on a midlife career change. There are also adult students from Roy's applied short course programs in color science and engineering given at industrial and corporate sites around the US and in Europe, Asia and Australia. Finally a number of post-doctoral fellows have traveled to RIT from around the world to study and research their color science questions with Roy. All students were inspired by Roy to develop state-of-the-art technology that led to new color science frontiers. To summarize the success of Roy, the professor, he graduated 46 masters and doctoral degree students. Because his emphasis is on student-centric research publications and presentations, hundreds of articles have been published in such prominent journals as those shown here.



Also hundreds of presentations have been given at many of these prestigious color, imaging, optics, and art conservation conferences around the world.

- AIC Meetings and Congresses
- CIE Interim and Quadrennial Meetings
- Color Imaging and Image Archiving Conferences sponsored by IS&T and SID in USA and Europe
- Optical Society of America Meetings
- International Congresses of Imaging Science Meetings
- ICOM Committee for Conservation Triennial Meetings
- American Institute of Conservation Meetings

The topics featured in these publications and presentations cover many global aspects of color science from practical color imaging (including digital capture, measurement, perception, production and reproduction) to fundamental color principles (colorant formulation, color difference evaluation, and color appearance). The legacy of Roy's contribution to color education lives on throughout the world as his students and postdoctoral fellows are now practicing what they have learned at many of these academic, corporate and industrial institutions across the globe.



So today as we are gathered in this room together, we reach out our hearts to say, Roy, thank you for the gift of your students!

To continue with Roy's color education contributions, we must call to mind some other very sad events. Once again tragedy hit the color science world and Roy personally with the death of his two mentors, Dr. Fred W. Billmeyer, Jr. and Mr. Max Saltzman. Their iconic book, *Billmeyer and Saltzman's Principles of Color Technology*, needed revision. So once again Roy turned tragedy into triumph by admirably taking on the task of writing the third edition. The third edition expanded traditional color science aimed at quality assurance by including color imaging. Roy took a classic piece of color science educational literature from the past and revised it to a present day state-of-the-art textbook that is being used in classrooms and industries in the US, China, Taiwan and other places around the world.

Now let's move to Roy's passion for research projects. A research theme that has been present throughout his career is the development of color difference formulae. Roy has been involved in both the elucidation of important psychophysical data and in the ongoing creation and improvement of color difference equations for industrial applications. Fundamental visual color tolerance psychophysical data were collected at RIT, involving students and visiting scientists from the United States, Japan, China, Taiwan, and Germany. After recognizing the shortcomings of the CIELAB color difference formula, Roy derived the international CIE94 equations. He worked with Dupont Automotive, University of North Carolina, University of Granada, and CIE Technical Committee TC1-55 to develop the current international color difference equation known as CIEDE2000, which is now an ISO standard. This color difference research continues and has spanned nearly 30 years.

Roy was the first to establish a research program in spectral-based imaging, archiving and printing of cultural heritage. His visionary work was enabled by expertise at RIT in the areas of printing as well as image science. Roy's techniques set the example as others have followed this innovative work by doing similar research in academic laboratories found in Germany, Norway, and Taiwan.

Roy recognized that the next color science frontier is the measurement and standardization of total appearance, that is, color and spatial properties. Using principles of photometric stereo and linear light source reflectometry, imaging systems have been built that measure spectral reflectance, surface microstructure (gloss and BRDF), and surface macrostructure (surface normal). These systems have been successfully tested at the Museum of Modern Art for works of Jackson Pollack and Vincent Van Gogh. From these data, images can be rendered using computer graphics that enable the viewer to

interact with the image in similar fashion to moving around that actual painting. Roy's work here has spawned so much interest that the Munsell Color Science Lab at RIT has taken on two professors to help mature the technology of total appearance measurement.

Recently, Roy has begun a new area of research, solid-state lighting for museum applications. This draws upon his expertise in color science, the physics of artist materials, and chromatic adaptation. Roy's unique color science expertise sheds new light on problems that lighting engineers and scientists have been trying to solve for quite some time.

The final area of Roy's research that I will discuss is my personal favorite and one that is of great interest to an international group such as the AIC. It is his use of color and imaging science principles for digital rejuvenation of artwork. Roy has become an innovator and pioneer in this field and is paving the way for others to follow. Art restoration and preservation used to be a very time-consuming and painstaking effort done by hand. The application of Roy's revolutionary techniques has resulted in a more reliable, efficient and faithful color reproduction of the original painting. Using a combination of analytical spectroscopy, instrumental-based color matching, color-managed imaging, and image processing, Roy turns back the clock when paintings and drawings change their colors appreciably due to the ravages of time. This work has become internationally renowned as it has been applied to works of art at the Art Institute of Chicago, the National Gallery of Art in Washington D. C., the Museum of Modern Art in New York, the J. Paul Getty Museum in Los Angeles and the Van Gogh Museum in Amsterdam.

One of the biggest challenges facing AIC has always been the color communication gap between artists and scientists. The AIC is grateful to Roy for his pioneering work in the area of art conservation and preservation because it has gone a long way towards bridging this gap.

I will leave you with the following thoughts. Deane B. Judd's impact on the field of color was enormous, in part because he contributed to a wide array of applications including color differences, color appearance, color physics and lighting. To quote Dr. Judd from the Preface of his book, *Color in Business, Science and Industry*, "The key to color problems of the future is to be found in visual psychophysics mixed with a sprinkling of common sense." At the heart of the body of work that Roy has done over the years is visual psychophysics. His common sense has come from having the sense to know that color is an international concept that can unite scientists, artists, designers, educators and industrialists. The result of his common sense has been ground-breaking research findings in the areas of color education, color difference, spectral-based imaging systems, total appearance measurement, and digital rejuvenation of artwork that have globally advanced state-of-the-art color science.

Now let's enjoy this short slide show showing highlights from Roy's career!

Congratulations to Roy, my friend, your friend, our teacher, our researcher, our scholar and our colleague as he receives the 2013 AIC Deane B. Judd Award.

*Paula Alessi, former President of AIC*

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## **New AIC members to welcome**

### REGULAR MEMBERS:

#### **Société canadienne de recherché sur la couleur (SCRC)**

#### **Colour Research Society of Canada (CRSC), Canada**

Website: [www.colourresearch.org](http://www.colourresearch.org)

E-mail: [dbalabanoff@faculty.ocadu.ca](mailto:dbalabanoff@faculty.ocadu.ca)

President: Associate Professor Doreen, Balabanoff, Faculty of Design, OCAD University, Toronto, Ontario, Canada

#### **Gruppo del Colore – Associazione Italiana Colore**

#### **Colour Group - Italian Colour Association, Italy**

Website: [www.gruppodelcolore.it](http://www.gruppodelcolore.it)

E-mail: [presidenza@gruppodelcolore.it](mailto:presidenza@gruppodelcolore.it)/[maurizio.rossi@polimi.it](mailto:maurizio.rossi@polimi.it)

President: Professor Maurizio Rossi, Politecnico di Milano, Milano, Italy

### INDIVIDUAL MEMBERS:

#### **Galyna McLellan, Queensland University of Technology, Australia**

[galyna.mclellan@qut.edu.au](mailto:galyna.mclellan@qut.edu.au)

Her professional expertise and/or colour education relates to the following areas of colour research or application: architectural and interior design, history of architecture and colour design, education.

**Mark Wentworth**, Colour for Life, London, UK  
mark@colourforlife.com

His professional expertise and/or colour education relates to the following area of colour research or application: psychology.

**Leila Susan Munive**, Lima, Perú  
Munive.leila@gmail.com

Her professional expertise and/or colour education relates to the following areas of colour research or application: art and graphic design.

**Ajit Dnyaneshwar Shinde**, Suryadatta Education Foundation, Maharashtra, India  
ajit.sea@gmail.com

Her professional expertise and/or colour education relates to the following areas of colour research or application: interior design and education.

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## AIC meetings and congresses beyond 2013



**2014 AIC Interim Meeting, Oaxaca City, Mexico**  
**Theme:** Colors, culture and identity: past, present and future

**Date:** 21 - 24 October 2014

**Organizer:** The Mexican Color Researchers Association (AMEXINC)

**Info:** [www.aic2014.org](http://www.aic2014.org)



**2015 TOKYO**

**AIC Midterm Meeting, Tokyo, Japan**

**Theme:** Color and Image

**Date:** 19 - 22 May 2015

**Organizer:** The Color Science Association of Japan

**Info:** [www.aic2015.org](http://www.aic2015.org)

**Contact:** [office@color-science.jp](mailto:office@color-science.jp)



**2016 AIC Interim Meeting, Santiago, Chile**

**Theme:** Colour in urban life: Usability in images objects and space

**Date:** 18 - 22 October 2016

**Organizer:** The Chilean Colour Association  
(Info: [www.aic2016.org](http://www.aic2016.org))

**Contact:** [diffusion@asociaciondelcolour.cl](mailto:diffusion@asociaciondelcolour.cl)



**2017 AIC 13<sup>th</sup> Congress, Jeju, Korea**

**Date:** 16 - 20 October 2017

**Venue:** International Convention Center Jeju

**Organizer:** Korea Society of Color Studies

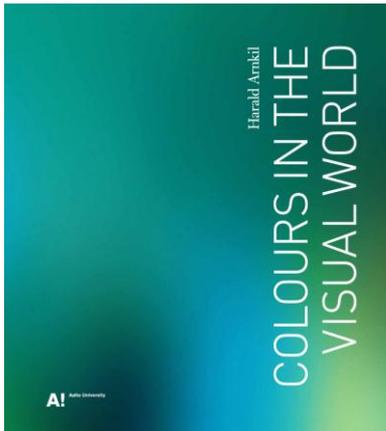
**Info:** [www.color.or.kr](http://www.color.or.kr)

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## New Literature

**Colours in the Visual World by Harald Arnkil** - Available on October 2013

Do colours affect our emotions? Can colour be measured? How does changing illumination affect the perception of colours? What is colour harmony? Colours in the Visual World provides answers to these questions. The book inspires the reader to tap artistic knowledge and the findings of perceptual science to understand and creatively use colour. It is a resource of colour phenomena and facts for students of art, design and architecture, as well as all those interested in the world of colour.



The chapters of *Colours in the Visual World* are: 1: Colour and vision; 2: Material and immaterial colour; 3: Primary colours and colour mixture; 4: Contrast; 5: Harmony and disharmony; 6: Colour as sign and signal; 7: Colour systems and colour models; 8: Illumination and colour; 9: Changing and constant colour; 10: Colour in pictorial space; 11: Colours in the built environment; 12: Colours through the mind's eye.

Harald Arnkil graduated with a Master's degree in painting from the Finnish Academy of Fine Art. Since 1990 he has worked as a lecturer and researcher of colour at the Aalto University School of Arts, Design and Architecture. He has participated in international research projects and has published many articles on the perception and experience of colour.

The book has 290 pages and over 160 illustrations in full color. ISBN 978-952-60-5246-5

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## Calendar

### **CHROMA Workshop on colour image between motion pictures and media**

18 September, 2013 in University of Florence, Santa Verdiana Building  
More info: <http://chroma.di.unimi.it/inglese/index.html>

### **IX Conferenza del Colore**

19-20 September, 2013 in Firenze, Italia at University of Florence  
Gruppo del Colore, Italy, Applied Physics Institute Nello Carrara and Colour Group, Great Britain  
More info: <http://www.gruppodelcolore.it/index.php>

### **CIC21 Color Imaging Conference**

4-8 November, 2013 in Albuquerque, New Mexico, USA  
Society for Imaging Science and Technology, IS&T and the Society for Information Display  
More info: [www.imaging.org](http://www.imaging.org)

### **Color Light & Appearance Week**

June 16-17, 2014 CIE Division 1 on Vision and Color  
June 18, 2014 Inter-Society Color Council Symposium  
June 19-20, 2014 ASTM E12 on Color and Appearance  
More info: [Mbrill@datacolor.com](mailto:Mbrill@datacolor.com) [Ellen.Carter@alum.rpi.edu](mailto:Ellen.Carter@alum.rpi.edu)

### **International Union of Architects Congress 2014**

The conference and exhibition will be held in Durban on 4 – 9 August 2014 at the International Convention Centre. The congress is being held in Southern Africa for the first time and is expected to attract a rich blend of more than 500 architects from all parts of the world. The main goal of the congress is to provide architects with an opportunity to participate in a series of culturally and professionally enriching events based on a specific theme and establish or re-establish contact with colleagues from different countries, particularly from the country hosting the congress. The African Union of Architects (AUA) has been co-opted as a partner for the congress.  
More info: [www.ecospecifier.co.za](http://www.ecospecifier.co.za)