



www.icvs.info

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June 2006

ICVS.info Update

Joel Pokorny, PhD, Andrew J. Zele, PhD and Dingcai Cao, PhD

The ICVS website is currently under construction. It will serve as the communication point for the Society. The website for ICVS Brasil will be linked, as will the websites from past ICVS conferences.

Home Page: The main page will include the ICVS logo (tentatively the logo designed by Steve Shevell for the Visual Neuroscience Proceedings cover and now used on Daltoniana) and flash pictures that rotate through photos from past conferences. There will be buttons to provide links to different sections of the website.

We propose to include links to the:

- The ICVS Bylaws
- President, Secretary and Treasurer/Membership Officer Messages.
- Past and future ICVS conference websites.
- Daltoniana (including as many past issues as possible).
- A list of the Verriest medal winners.

• A full bibliographical record of all ICVS proceedings.

- List and contact details of the Directors.
- Interactive calendar to identify important

upcoming events in colour vision.

• A section dedicated to member profiles. We will generate a template and members are welcome to submit material. Profiles will be screened by the webmasters and may be included at their discretion. The University of Chicago has agreed to host the website. The only restriction is that the University does not permit advertisement of any form on their websites. In the future, when the need arises it will be straightforward to relocate to another hosting organization.

Security: The website will be secured using SSL (Secure Sockets Layer). The website will be password protected and access will be granted to ICVS board members.

Functions: The website will use PayPal for membership fee processing.

An underlying database will be used to maintain member profiles, which can be exported into other email applications, such as Apple Mail, Eudora or Outlook.

The website will have an anonymous voting system for future director elections.

Email: A secure, password protected section of the site will contain details of all ICVS members. The Treasurer/Membership Secretary and the Daltoniana Editors will be able to send emails using the most current membership list.

Webmasters and Ongoing Maintenance: Dingcai Cao and Andrew Zele have volunteered to serve as webmasters. The contract with the web designer, Katie Wu, includes site maintenance for two years.

Further suggestions are welcome and can be incorporated.

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Junior Member Profile: Joseph Carroll, PhD

Joseph Carroll did his undergraduate studies in Human Biology at the University of Wisconsin in Green Bay, Wisconsin. In 1998 he began graduate work in the laboratory of Drs. Jay and Maureen Neitz at the Medical College of Wisconsin. His thesis work focused on using the ERG to investigate variability in color normal and color defective observers. In 2003 he moved to Rochester, NY to pursue a postdoctoral fellowship with Dr. David Williams in the field of retinal imaging, where he was the recipient of an NRSA individual postdoctoral fellowship from the NIH. He recently returned to the Medical College of Wisconsin as an Assistant Professor in the Department of Ophthalmology. His general research interests include comparative color vision, variability in human color vision, and retinal imaging.

Joe is active in many professional societies besides ICVS. He is a member of ARVO (Association for Research in Vision and Ophthalmology), ISER (International Society for Eye Research), ISCC (Inter-Society Color Council), and OSA (Optical Society of America). He is on the VI program committee and the Advocacy committee at ARVO and is the vice-chair of the OSA



Applications of Visual Science technical group. He has helped organize the OSA Fall Vision Meeting in Rochester in 2004 & 2006, and plans on being an active member of the vision community for many years to come.

Joe was born in Milwaukee, Wisconsin. He holds Irish citizenship, as his father was born in New Ross, County Wexford (the same town that JFK's ancestors are from). He was married in September of 2002 to Heather, who is pursuing a PhD in English as a Second Language at the University of Wisconsin-Madison. They have 2 daughters, Siobhan Elizabeth (born September 7th, 2003) and Niamh Josephine (born March 5th, 2006). He enjoys playing golf, loves to cook (and eat!), and is a huge Green Bay Packers fan. He and his wife especially enjoy traveling overseas, and have ventured to Russia, Greece, Ireland, France (ICVS '05), and England (ICVS '01) together.

Selected Publications

Hofer, H., **Carroll, J.**, Neitz, J., Neitz, M., Williams, D. R., "Organization of the human trichromatic cone mosaic" *Journal of Neuroscience* 25(42): 9669-9679 (2005).

Carroll, J., Neitz, M., Hofer, H., Neitz, J., Williams, D. R., "Functional photoreceptor loss revealed with adaptive optics: An alternate cause of color blindness" *Proceedings of the National Academy of Sciences*, *USA* 101(22): 8461-8466 (2004).

Carroll, J., Neitz, M., Neitz, J., "Estimates of L:M cone ratio from ERG flicker photometry and genetics" *Journal of Vision* 2(8): 531-542 (2002).

Neitz, J., **Carroll, J.**, Yamauchi, Y., Neitz, M., Williams, D. R., "Color perception is mediated by a plastic neural mechanism that remains adjustable in adults" *Neuron* 35(4): 783-792 (2002).

Carroll, J., McMahon, C., Neitz, M., Neitz, J., "Flicker-photometric electroretinogram estimates of L:M cone photoreceptor ratio in men with photopigment spectra derived from genetics" *Journal of the Optical Society of America A* 17(3): 499-509 (2000).



Joel Pokorny, PhD President

Steven Buck, PhD *General secretary*

Neil Parry, PhD Treasurer & Membership Officer

Dingcai Cao, PhD Andrew J. Zele, PhD Daltoniana Editors

Board of Directors

John Barbur, PhD Stephen Dain, PhD Kenji Kitahara, PhD Ken Knoblauch, PhD Barry B. Lee, PhD John Mollon, PhD Jay Neitz, PhD Steven K. Shevell, PhD Luiz C. L. Silveira, PhD Dora F. Ventura, PhD Françoise Viénot, PhD

Editorial

Dingcai Cao, PhD and Andrew J. Zele, PhD

Selected Colour Abstracts

Nocturnal colour vision - not as rare as we might think

Kelber A, Roth LSV

The dual retina of humans and most vertebrates consists of multiple types of cone for colour vision in bright light and one single type of rod, leaving these animals colour-blind at night. Instead of comparing the signals from different spectral types of photoreceptors, they use one highly sensitive receptor, thus improving the signal-to noise ratio. However, nocturnal moths and geckos can discriminate colours at extremely dim light intensities when humans are colourblind, by sacrificing spatial and temporal rather than spectral resolution. The advantages of colour vision are just as obvious at night as they are during the day. Colour vision is much more reliable than achromatic contrast, not only under changing light intensities, but also under the colour changes occurring during dusk and dawn. It can be expected that nocturnal animals other than moths and geckos make use of the highly reliable colour signals in dim light.

ÚURNAL OF EXPĚRIMENTAL BIOLOGY (2006). 209: 781-788

Stochastic spineless expression creates the retinal mosaic for colour vision

Wernet MF, Mazzoni EO, Celik A, Duncan DM, Duncan I, Desplan C

Drosophila colour vision is achieved by R7 and R8 photoreceptor cells present in every ommatidium. The fly retina contains two types of ommatidia, called 'pale' and 'yellow', defined by different rhodopsin pairs expressed in R7 and R8 cells. Similar to the human cone photoreceptors, these ommatidial subtypes are distributed stochastically in the retina. The choice between pale versus yellow ommatidia is made in R7 cells, which then impose their fate onto R8. Here we report that the Drosophila dioxin receptor Spineless is both necessary and sufficient for the formation of the ommatidial mosaic. A short burst of spineless expression at mid-pupation in a large subset of R7 cells precedes rhodopsin expression. In spineless mutants, all R7 and most R8 cells adopt the pale fate, whereas overexpression of spineless is sufficient to induce the yellow R7 fate. Therefore, this study suggests that the entire retinal mosaic required for colour vision is defined by the stochastic expression of a single transcription factor, Spineless.

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We are pleased to introduce our first Member profile: Dr Joseph Carroll. We appreciate Joe's contributions to Daltoniana. We will be continuing this section in forthcoming issues and profile junior researchers from all continents, and across all colour vision disciplines within the Society. The "Selected Colour Abstracts" section introduces the most current colour-related work. Any member who wants their work to be included in Daltoniana, please send us the abstract.

We have included the "in preparation" contents page for the special issue of Visual Neuroscience. We apologise in advance to authors' whose manuscripts may be incorrectly cited (or missing) as the information we have may not be most current. Visual Neuroscience is responsible for the published version. Finally, we are working on the contents of icvs.info, we welcome the input from the Society.

OBITUARY: Professor Munehira Akita (1930-2006)



Kyoto, April 1992 Muni,

Munehira Akita, well known for his keen scientific insight and cheerful personality, was known as "Muni" among international colleagues. Muni was born in Kyoto in 1930. After graduating with a B.A. in 1953 and obtaining a M.A. in 1955, both in psychology from Kyoto University, he was a research associate there until he went to the U.S. as a Fulbright scholar in 1958. He studied at the University of Michigan and subsequently at Columbia University where he obtained a Ph.D. in experimental psychology in 1962. He continued his research in visual perception as a post-doctoral fellow at Columbia until 1963 when he came back to Japan to be an assistant professor of psychology and color science at Kyoto Institute of Technology (KIT). He was quickly promoted to a professor in 1968. This is where he spent the majority of his academic life until he retired in 1994. He was immediately awarded the status of Professor Emeritus from KIT. He was still very energetic and his career didn't end there. He was a professor of ergonomics, environmental psychology, and color science at Nihon Fukushi University, a newly established private university, from 1994 to 2001. After the second retirement, he remained active and enjoyed the life in Kyoto where he grew up.

In February this year, the doctors found that he had a liver cancer. He and his whole family were very surprised by the news because he didn't have any symptoms. He successfully went through a 10-hour surgery to remove the right lobe of his liver. Upon completion of chemotherapy in late April, he came home. At this time the family noticed his declining condition. On May 3rd, he called Prof. Jiro Hamada at Tokushima University, one of the many people he had profoundly influenced. Prof. Hamada visited Muni on May 5th. He says that Muni was comfortably seated in a sofa and enjoyed the conversation on higher education in Japan and the many younger scientists that he supervised. On May 7th, he had to be carried back to the hospital where he passed away. His beloved daughter Lisa says that he seemed to know that it was his last day. He repeatedly told his family that he had a happy life and that his wife Junko and he were a wonderful couple.

His friends all over the world know that he was a great scientist with rigor, contributing to the advancement of vision science and color vision. He was one of the pioneering Japanese experimental psychologists who obtained a Ph.D. in the West and came back to Japan to educate generations of scientists. He strived to introduce global views to Japanese scientists and encouraged young people to study abroad and see a different world. Many of us remember him from AIC 1997, which he hosted as the president of the Color Science Association of Japan. The meeting attracted more than 500 attendees from 29 countries. We also know that he had a very charming personality and truly enjoyed entertaining friends from out of town. He was a cosmopolitan, flying around the world to see various societies. He made friends with people wherever he went. He named his children Lisa and Joe so that they could easily introduce themselves to new friends anywhere in the world. At the same time, his core remained a Kyoto native and he was very street-smart around the whole city. He knew every famous attraction or hidden gem of Kyoto.

Muni was a long-time member of the IRGCVD-ICVS; he will be remembered fondly by his many good friends in the Society.

He is survived by his wife, Junko, an ophthalmologist and genuine Kyoto lady, daughter, Lisa, and ophthalmologist son, Joe.

By Eriko Miyahara, PhD

Eriko was a MA student with Muni at the Kyoto Institute of Technology, Japan

VISUAL NEUROSCIENCE

International Colour Vision Society 2005 Symposium

JOHN MOLLON

HUSEYIN BOYACI, KATJA DOERSCHNER, JACQUELINE L SNYDER AND LAURENCE T. MALONEY

QASIM ZAIDI

DAVID L. PHILIPONA AND J. KEVIN O'REGAN

DAVID H. FOSTER, KINJIRO AMANO AND SÉRGIO M. C. NASCIMENTO

KINJIRO AMANO, DAVID H. FOSTER AND SÉRGIO M. C. NASCIMENTO

MICHEL DOJAT, LOŸS PIETTRE, CHANTAL DELON-MARTIN, MATHILDE PACHOT-CLOUARD, CHRISTOPH SEGEBARTH AND KENNETH KNOBLAUCH

GERALD H. JACOBS AND GARY A. WILLIAMS

SAMIR S. DEEB, YAN LIU AND TAKAAKI HAYASHI

MAUREEN NEITZ, SHAWN D. BALDING, CARRIE MCMAHON, STACY A. SJOBERG AND JAY NEITZ

KENNETH KNOBLAUCH, MAUREEN NEITZ AND JAY NEITZ

SATOSHI GOTO-OMOTO, TAKAAKI HAYASHI, TAMAKI GEKKA, AKIKO KUBO, TOMOKAZU TAKEUCHI AND KENJI KITAHARA

KAREN L. GUNTHER, JAY NEITZ AND MAUREEN NEITZ

2005 Verriest Medal Lecture

Monge

Surface Colour Perception

Surface Color Perception in Three-Dimensional Scenes

Three-Dimensional Shape Perception From Chromatic Orientation Flows

The perceptual structure of color corresponds to singularities in spectral reflection properties

Judging surface color in natural scenes independently of a visible illuminant

Judging surface color in natural scenes independently of a visible illuminant

Global Integration of Local Color Differences in Transparency Perception: an fMRI study

Genetics

L and M cone proportions in polymorphic New World monkeys

Mutually exclusive expression of the L and M pigment genes in the human retinoblastoma cell line WERI: resetting by cell division

Topography of long- and middle-wavelength sensitive cone opsin gene expression in human and Old World monkey retina

An urn model of the development of L/M cone ratios in human and macaque retinas

Compound heterozygous CNGA3 mutations (R436W, L633P) in a Japanese patient with congenital achromatopsia

A novel mutation in the short-wavelength sensitive cone pigment gene associated with a tritan color vision defect TAKAAKI HAYASHI, AKIKO KUBO, TOMOKAZU TAKEUCHI, TAMAKI GEKKA, SATOSHI GOTO-OMOTO AND KENJI KITAHARA

FRANCOISE VIENOT, LUCILE SERREAULT AND PEDRO PARDO FERNANDEZ

PETER KURT AHNELT, CHRISTIAN SCHUBERT, ANNA KÜBBER-HEISS, ALEXANDRA SCHIVIZ, ELISABETH ANGER AND MARTIN GLÖSMANN

MARLISON JOSÉ L. DE AGUIAR, DORA FIX VENTURA, MANOEL DA SILVA FILHO, JOHN MANUEL DE SOUZA, ROGÉRIO MACIEL AND BARRY B. LEE

HAO SUN,HANNAH SMITHSON, QASIM ZAIDI AND BARRY B. LEE

MANCA TEKAV_I_ POMPE, BRANKA STIRN KRANJC AND JELKA BRECELJ

HANNAH E. SMITHSON, SABAH S. KHAN, LINDSAY T. SHARPE AND ANDREW STOCKMAN

MARCELO FERNANDES COSTA, DORA FIX VENTURA, FELIPE PERAZZOLO, MARCIO MURAKOSHI AND LUIZ CARLOS L. SILVEIRA

ANDREW STOCKMAN, ETHAN D. MONTAG AND DANIEL J. PLUMMER

FLORENT AUTRUSSEAU AND STEVEN K. SHEVELL

ANTHONY D. D'ANTONA AND STEVEN K. SHEVELL

LUIZ HENRIQUE M. DO CANTO-PEREIRA, GALINA V. PARAMEI, EDGARD MORYA AND RONALD D. RANVAUD

ANDREW J. ZELE, VIVIANNE C. SMITH AND JOEL POKORNY

Novel form of a single X-linked visual pigment gene in a unique dichromatic color-vision defect

Photopigments

Is it possible to derive the maximum wavelength of middle- and long-wavelength sensitive cone photopigments using multiple-Rayleigh matches?

Physiology and Anatomy

Topographic (un-) coupling of S- and M (/L)-cones in retinas of man, felids and other mammals

Response of carp (Cyprinus carpio) horizontal cells to heterochromatic flicker photometry

Do magnocellular and parvocellular ganglion cells avoid short-wavelength cone input?

Chromatic Coding

Visual Evoked Potentials To Red-Green And Blue-Yellow Stimulus In Schoolchildren

Transitions between colour categories mapped with a reverse Stroop task

Absence of Binocular Summation, Eye Dominance and Learning Effects in Color Discrimination

Temporal Factors

Paradoxical shifts in human colour sensitivity caused by constructive and destructive interference between signals from the same cone class

Temporal nulling of induction from spatial patterns modulated in time

Induced Steady Color Shifts Due to Nonlinear Temporal Integration of Time Varying Surrounds

Inhibition or facilitation of return: Does chromatic component count?

Spatial and temporal chromatic contrast: Effects on chromatic discrimination for stimuli varying in L- and M-cone excitation

IAN J. MURRAY, NEIL PARRY AND DECLAN MCKEEFRY

MARINA DANILOVA AND JOHN MOLLON

STEVEN L. BUCK, LAURA P. THOMAS, NICK HILLYER AND ERIC M. SAMUELSON

JOEL POKORNY, MARGARET LUTZE, DINGCAI CAO AND ANDREW J. ZELE

DINGCAI CAO, ANDREW J. ZELE AND JOEL POKORNY

LAURA P. THOMAS AND STEVEN BUCK

J D. MORELAND AND S WESTLAND

IJ MURRAY, A DAUGIRDIENE, R STANIKUNAS, H VAITKEVICIUS AND JJ KULIKOWSKI

MIKEL A. ALDABA, JOÃO M.M. LINHARES, PAULO D. PINTO AND SÉRGIO M.C. NASCIMENTO

SANG WOOK HONG AND STEVEN K. SHEVELL

STEVEN K. SHEVELL AND PATRICK MONNIER

FRÉDÉRIC DEVINCK, JOSEPH L. HARDY, PETER B. DELAHUNT, LOTHAR SPILLMANN AND JOHN S. WERNER

DAVID L. BIMLER, GALINA V. PARAMEI AND CHINGIS A. IZMAILOV

BAINGIO PINNA

PEGGY GERARDIN, PHILIPPE ROUD, SABINE SÜSSTRUNK AND KENNETH KNOBLAUCH

MARIS OZOLINSH, MICHÉLE COLOMB, GATIS IKAUNIEKS AND VARIS KARITANS

THORSTEN HANSEN AND KARL R. GEGENFURTNER

Peripheral Visual Field

Cone Opponency In The Near Peripheral Retina

The gap effect is exaggerated in parafovea

Rod-Cone Interaction

Do rods influence the hue of foveal stimuli?

The color of night: Surface color perception under dim illuminations

Dark-adapted rods suppression of cone flicker detection: Evaluation of receptoral and post-receptoral interactions

Foveal and extra-foveal influences on rod hue biases

Color Constancy

Macular Pigment and color discrimination

Cone Contrasts Do Not Predict Colour Constancy

Visual sensitivity to color errors in images of natural scenes

Perception

Resolution of binocular rivalry: Perceptual misbinding of color and form

Color shifts induced by S-cone patterns: Spatial structure at the S-cone or postreceptoral level?

Spatial Profile of Contours Inducing Long-Range Color Assimilation

A whiter shade of pale, a blacker shade of dark: Parameters of spatially induced blackness

The Discoloration Illusion

Effect of motion and configural complexity on color transparency perception

Colour Stimuli Perception In Presence Of Light Scattering

Color Scaling of Discs and Natural Objects at Different Brightness Levels

MARGARET LUTZE, JOEL POKORNY AND VIVIANNE C. SMITH

Congenital Deficiencies

Achromatic parvocellular contrast gain in normal and color defective observers: Implications for the evolution of color vision

BRUNO D. GOMES, GIVAGO S. SOUZA, ANDERSON R. RODRIGUES, CÉZAR A. SAITO, LUIZ CARLOS L. SILVEIRA AND MANOEL DA SILVA FILHO

RIGMOR C. BARAAS, DAVID H. FOSTER, KINJIRO AMANO AND SÉRGIO M. C. NASCIMENTO

SANDRINE DELORD, MARIA GIOVANNA

DUCATO, DELPHINE PINS, FRÉDÉRIC DEVINCK, PIERRE THOMAS, MURIEL BOUCART AND KENNETH KNOBLAUCH

VALÉRIE BONNARDEL

Normal and dichromatic color discrimination measured with transient VEP

Anomalous trichromats? Judgments of surface color in natural scenes under different daylights

Colour naming and colour categorisation in case of inherited colour vision deficiencies

Clinical Psychophysics

Psychophysical assessment of magno- and parvocellular function in schizophrenia

JEFFERY K HOVIS AND SHANKARAN RAMASWAMY

DAVID Y. LEE

STEPHEN J DAIN

KATHERINE MANCUSO, MAUREEN NEITZ AND JAY NEITZ

The effect of test distance on the CN Lantern results

Color Changes in the 50 Year Old AO HRR Color Vision Test

Illuminant and observer metamerism in a clinical colour vision test

An Adaptation of the Cambridge Colour Test for use with Animals