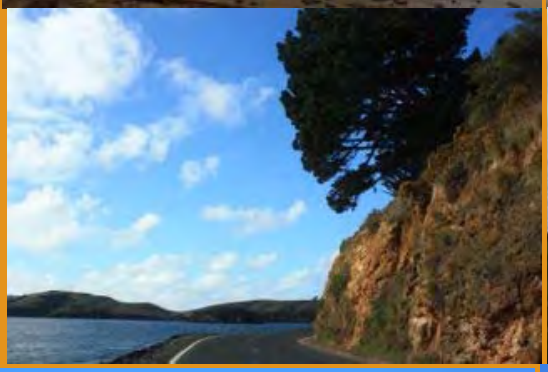
The Asian and Oceanian Photochemistry Association

Regional Focus Australia & New Zealand

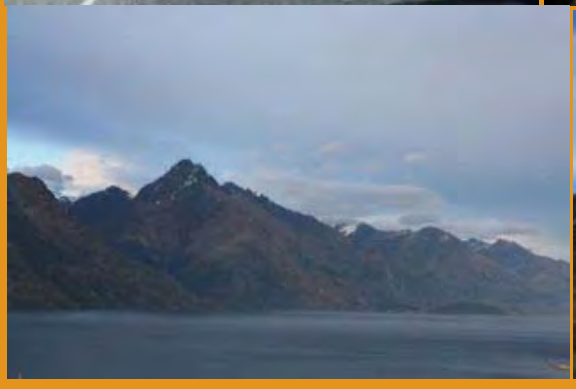
Newsletter Number 2, 30th November 2012









Front cover and inside cover photos from Anton Sadovoy and Sergey Gorelik

The Asian and Oceanian Photochemistry Association

APA *Newsletter Number 2, 30th November 2012*

Contents

APA Presidents' Preface

Professor Minjoong Yoon & Professor Ken Ghiggino

Retiring President's Message
Professor Minjoong Yoon,

Dear respected members of the APA;

Greetings! The end of 2012 is just round the corner. At the end of this December, I will step down from the presidency of the Asian and Oceanian Photochemistry Association (APA) which I served for the two years. Hereat, I would like to express my sincere gratitude to all the APA councilors and all the members in eight regional societies for their strong supports for the executive committee to be able to manage the APA smoothly without any big problem.

In reality, for the last two years the executive committee has made many efforts for new attempts to improve the APA profile. The first attempt was to clarify the administrative basis by amending the Consititution of the Association through change of some items such as the objectives of APA (section 2), council and executives (section 4) and finance (section 5) at the councilors meeting held in Beijing last year. Particularly, the change of the section 4 by subdividing the local society categories and reducing the term of councilors and executive committee members from 3 years to 2 years is expected to open channels to encourage each local society to promote the members. Also the Advisory Board became one of the official organs of the APA to advise the executive committee and councilor meeting officially for the sound advancement of the APA. The second attempt was to improve the APA network by reconstruction of the APA website and publication of the APA Newsletter for the activation of the regional scientific activities and communications for the promotion of international collaboration between the APA members in different communities. I would like to acknowledge great contributions of Professors Hiroshi Fukumura and Hiroshi Miyasaka and Dr. Jonathan Hobley in this matter.

The APA also supported major international conferences such as the XXV International Conference on Photochemistry and the annual Korea-.Japan Symposium on Frontier Photoscience which were held at Beijing and Seoul, respectively in 2011, cooperating with European Photochemistry Association (EPA) and Inter American Photochemical Society (I-APS) in selection of the Porter Medal awardee and Hammond prize. The most highlighted activity was the 7th Asian Photochemistry Conference (APC-2012) held at Osaka from November 12 to 15 this year, which was a very successful festival of the Asian and Oceanian photochemical community not only in terms of record number of participants over 320 but also in terms of the highest quality of papers presented enough to stimulate the world photochemical societies. It is also noticeable that Masuhara Lectureship Award was inaugurated in honor of Professor Hiroshi Masuhara, the Founding President of the APA in addition to the traditional APA award and prizes. I would like to express my sincere thanks to the organizing committee and chairpersons, Professor Tetsuro Majima and Professor Noboru Kitamura. During this conference, we elected new executive committee members including the president, Professor Ken Ghiggino for the term of 2013-2014. I believe that the new executive committee members and councilors continue to cooperate and support the sustainable advancement of the APA.

Finally I wish all the APA members have a Happy New Year 2013 with great prosperity and good health.

New President of the Asian and Oceanian Photochemistry Association's message Professor Ken Ghiggino

As the incoming President of the Asian and Oceanian Photochemistry Association (APA) I look forward to working with the Executive, Councilors and all members to promote photochemistry activities in our region. I wish to acknowledge the considerable contributions of our previous president, Prof Minjoong Yoon, which have further lifted the profile of the APA and expanded its activities. The APA has now established a regular series of biennial conferences, website, and newsletter that provide opportunities for photochemists in the region to network and communicate. The prestigious APA prizes, awards and lectureships also allow recognition of the excellent work of both young and established photochemistry researchers.

I look forward to working with the APA Councilors over the next 2 years to realize the program of activities that have already been set in place and to develop new opportunities to promote interactions between photochemistry researchers in the APA member countries. I encourage all members to provide suggestions to their local Councilors on additional ways the APA can assist promote photochemistry activities and enhance collaborations.

Forward

In this November 2012 issue we have compiled some APA news derived from decisions made at the APA councilors 7th APC meeting held in Osaka earlier in November. We also summarize the conference and especially acknowledge those whose great works in photochemistry had been honored by the range of APA prizes given out at the APC meeting. The APC provided a valuable forum for interactions between the member regions, so special thanks must be given to Professor Kitamura and Professor Majima, as well as all of the other organizing team and the helpers, for arranging such a smooth event.

In addition in this issue we will have a regional focus on Australia and New Zealand so that we can learn what happens in photochemistry "down-under" or as they may feel "up-on-top". We hope that by introducing the activities of the regions we can further enhance collaborations with the APA community.

Finally we will announce upcoming events and review some events that have occurred between now and the last Newsletter in April. We hope you enjoy this November's issue. I wish to give many thanks to everyone who has contributed to this issue, providing text and photos. Have a very happy new-year.

APA News.

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Professor Ken Ghiggino, one of photochemistry's "big guns" will take over as APA President in 2013

New executive members.

Executive members for 2013-2014
President; Ken Ghiggino,

Vice Presidents
Hiroshi Miyasaka
Vivian Wing-Wah Yam,

Secretary Treasurer
Kiyomi Kakiuchi

Subscription of J. Photochem. Photobiol. C.

APA has been subscribing 57 copies of J. Photochem. Photobiol. C on the basis of the regulation of "1 copy / each region + 1 copy / 10 members in each region (except for Japan)". But, internet access is now available in many areas and the cost of the subscription is quite large. So, we decided to change the subscription number to 1 copy / 1 councilor (except for Japan). APA has not been assisting the subscription for councilors in Japan because they subscribe to this journal from JPA. Elsevier will directly send a copy to each councilor in 2013.

Reduction of the membership fee.

On the basis of the decrease of the subscription number of J. Photochem. Photobiol. C and the financial balance, we decided to reduce the membership fee to 2 USD / year from 3USD / year.

Masuhara Lectureship Award

Initially it was decided that there would be 1 winner of this award was every 2 years (the winner receiving 100,000 JPY for the travel aid). However it has been decided to change this to 2 lecturers / 2 years (at least one from Asia and Oceania) and each winner will receive 100,000 JPY for travel aid.

Advisory Members for 2013-2014.

On the basis of the Constitution 4-f "*The term of Advisory Board members is two years. Advisory Board members can be reappointed.*", 7 present members were reappointed. In addition, 3 new members, Haruo Inoue, Kazuhuko Mizuno, and Minjoong Yoon were recommended as Advisory Board Members.

Advisory board members (2013-2014)
Akira Fujishima (Kawasaki); Osamu Ito (Sendai); Yuan-Tseh Lee (Taipei); Sheng-Hsien Lin (Taipei); Hiroshi Masuhara (Nara); Jai Pal Mittal (Mumbai); Keitaro Yoshihara (Tokyo); *Kazuhiko Mizuno* (*Ikoma*); *Haruo Inoue* (*Tokyo*); *and Minjoong Yoon (Daejeon)*

Forthcoming APC's

The 8th APC would be held in Trivandrum in November (probably, 6 (Sunday)- 13 (Thursday)) in 2014
The 9th APC would be scheduled to be held in Singapore.

Upcoming Conferences

International Conference on Photochemistry, ICP2013 Leuven Belgium.

Dear colleagues,

It is my greatest pleasure and honor to welcome you to the 26th International Conference on Photochemistry (ICP 2013), held in the beautiful city of Leuven, Belgium from July 21st till July 26th 2013!

The International Conference on Photochemistry has a long-standing tradition in bringing together world-leading scientists working in all areas of fundamental and applied photochemistry and related sciences.

The conference will be of interest to all those involved in using light to initiate and study chemical, physical and biological processes in matter.

Topics covered include Novel developments in spectroscopy and microscopy, Single molecule spectroscopy, Plasmonics and Photonics, Photochemistry in polymers and material science, Photochemistry in sustainable technology, Basic photochemistry, Labels, Ultrafast spectroscopy, Inorganic and theoretical photochemistry, Photochemistry in Biology, amongst others

The program for ICP2013 will consist of 13 plenary lectures, 34 invited lectures, more than 100 oral presentations and 2 poster sessions; all of this is condensed into 3 parallel and 10 thematic sessions distributed over six days. We are very happy to already announce the opening lectures on Sunday evening by Professor Stefan Hell and Professor Thomas Ebbesen.

Registration and abstract submission is now available on the website www.ICP2013.com

Looking forward to meeting you all in Leuven in 2013,

Yours sincerely,
Johan Hofkens on behalf of the local organizing committee

Topics to be covered in the conference

Basic photochemistry (energy and electron transfer, H-bonding, salvation dynamics, aggregates)
Inorganic and theoretical photochemistry (qdots, lanthanide spectroscopy, inorganic probes, theory and modeling)
Labels (fluorescent proteins, photochromics, photoswitches, novel organic probes)

Novel developments in spectroscopy and microscopy (super resolution microscopy, biomedical microscopy, non-linear spectroscopy / microscopy, correlative microscopy)
Single molecule spectroscopy (single molecule biophysics, single molecule (photo)chemistry)
Photochemistry in Biology (singlet oxygen, phototherapy, biophysics)
Photochemistry in polymers and material science (spectroscopy in confined space, polymer (photo)chemistry and spectroscopy)
Photochemistry in sustainable technology (photovoltaics, photocatalysis, green photochemistry, environmental and atmospheric photochemistry)
Plasmonics and Photonics (SERS, photochemistry in intense laser fields)
Ultrafast-spectroscopy (coherent-control, femto and attosecond spectroscopy, femto-biospectroscopy).

Plenary speakers that confirmed
(in alphabetical order)
Prof Paul Blom (Mainz, Germany); Prof Luisa De Cola (Strasbourg, France); Prof Thomas Ebbesen (Strasbourg, France);
Prof Stefan Hell (Göttigen, Germany); Prof Hiroaki Misawa (Sapporo, Japan); Prof Atsushi Miyawaki (Tokyo, Japan); Prof William E. Moerner (Stanford, USA); Prof Klaus Müllen (Mainz, Germany); Prof Theo Rasing (Nijmegen, The Netherlands); Prof Gregory Scholes (Toronto, Canada); Prof Paul S. Weiss (Los Angeles, USA); Prof Jörg Wrachtrup (Stuttgart, Germany); Prof Chen-Ho Tung (Beijing, China)

Invited speakers that confirmed
(in alphabetical order)
Prof Jiro Abe (Tokyo, Japan); Prof Dario Bassani (Bordeaux, France); Prof Suzanna A. Blum (Irvine, USA); Prof Neill Branda (Burnaby, Canada); Prof Tobias Brixner (Würzburg, Germany); Prof Alexandre Brolo (Victoria, Canada); Prof Dominique Burgeois (Grenoble, France); Prof Suresh Das (Trivandrum, India); Prof Alberto Diaspro (Genoa, Italy); Prof Hiroshi Fukumura (Sendai, Japan); Prof Thomas Gensch (Jülich, Germany); Prof Dirk Guldi (Erlangen, Germany); Prof Jasper Knoester (Groningen, The Netherlands); Prof Seiya Kobatake (Osaka, Japan); Prof Marina Kuimova(London, UK); Prof Loredana Laterini (Perugia, Italy); Prof Yuan-Pern Lee (Hsinchu, Taiwan); Prof Yi Li (Beijing, China); Prof Stephan Link (Houston, USA); Prof Luis Liz Marzan (San Sebastian, Spain); Prof Dwayne Miller (Toronto, Canada/Hamburg, Germany); Prof Paul Mulvaney (Melbourne, Australia); Prof Peter Ogilby (Aarhus, Denmark); Prof Michel Orrit (Leiden, The Netherlands); Prof David Parker (Durham, UK); Prof Marcus Sauer (Würzburg, Germany); Prof Kai Song (Beijing, China); Prof Philip Tinnefeld (Braunschweig, Germany); Prof David Vandenbout (Austin, USA); Prof Gustaaf Vantendeloo (Antwerp, Belgium); Prof Bert Weckhuysen (Utrecht, The Netherlands); Prof Edwin Yeow (Singapore); Prof Kyung-Byung Yoon (Seoul, South-Korea); Prof Dongping Zhong (Columbus, USA)

ICMAT2013

http://www.mrs.org.sg/icmat2013/public.asp?page=home.asp

The Materials Research Society of Singapore (MRS-S) was created in 1999 as a not-for-profit organisation to serve a rapidly emerging materials science community in Singapore. The founding President of the Society was Prof Shih Choon Fong. The Society is affiliated with the International Union of Materials Research Societies (IUMRS).

Since its inception the focus of MRS-S has been to promote materials science not only to researchers in Singapore, but also to publicize the niche capabilities of local researchers throughout Asia and further afield. To this end, the Society's major activity is the organisation of a biennial event - the International Conference on Materials for Advanced Technologies or ICMAT - that is held in June/July and attracts more than 2000 delegates from all over the world.

Of particular note this year are the following Symposia:

Symposium DD - Nanostructures for Bio Sensing and Detection Chairs - Bengang XING, *Nanyang Technological University, Singapore;* Edwin YEOW, *Nanyang Technological University, Singapore* Co-Chair - Xing Yi LING, *Nanyang Technological University, Singapore*

Symposium K - Ultrafast Dynamics in Molecules, Nanostructures and Interfaces - Chair Gagik GURZADYAN, *Nanyang Technological University, Singapore* Co-Chairs Guglielmo LANZANI, *Center for Nano Science and Technology @Polimi, Istituto Italiano di Tecnologia, Italy* Cesare SOCI, *Nanyang Technological University, Singapore* Tze Chien SUM, *Nanyang Technological University, Singapore* Zhigang SHUAI, *Tsinghua University, China*

Gordon Research Conference on Photochemistry GRC July 14 - 19 2013 & Gordon Research Seminar on Photochemistry (Solar Energy Conversion and Light Harvesting) GRS July 13-14, 2013.

You can apply now to the **GRC** using this link: https://www.grc.org/application.aspx?id=11811
and to the **GRS** using this link: https://www.grc.org/application.aspx?id=14808

This year's GRC-Photochemistry which will be held from July 14 - 19 at Stonehill College in Easton, Massachusetts.

Bern Kohler (kohler@chemistry.montana.edu), co-Chair
Andrei Kutateladze (andrei.kutateladze@du.edu), co-Chair

Session Topics: Electron Transfer in Photochemistry; Photoassisted Synthetic Chemistry; Reaction Mechanisms; Photobiology; Imaging: Molecules and Methods; Solar Energy Conversion; Materials Photochemistry; Spectroscopy and Dynamics; Supramolecular Photochemistry.

Conference Reports.

7th APC – Asian Photochemistry Conference 2012. Osaka Japan

http://photochemistry.jp/apc2012/

By Professor Tetsuro Majima & the Editor

The 7th Asia and Oceania Conference on Photochemistry 2012 (APC2012) was held by co-chairs, Tetsuro Majima and Noboru Kitamura, in Icho Kaikan, Osaka University, Suita, Japan, from November 12th to 15th, 2012. 276 participants working in the fields of photochemistry and related areas gathered from 14 countries. There were 4 plenary lectures, 16 invited lectures, 73 oral talks, and 158 posters. Five young researchers were selected for Langmuir Poster Awards.

The conference was held over four days and the topics covered included General photochemistry and photobiology, Synthetic photochemistry, Coordination photochemistry, Theoretical photochemistry, Supramolecular photochemistry, Biophysical photochemistry, Photodynamic therapy, Chemistry and physics in intense laser fields, Ultrafast photochemistry and photophysics, photobiology, Femtochemistry and femtosecond spectroscopy, Single molecule spectroscopy, Time-resolved X-ray analysis, Environmental photochemistry, Singlet oxygen photochemistry, OLEDs and PLEDs, Solar Energy Conversion, Solar UV radiometry and Skin Cancer.

The program included two poster sessions, and in addition there was a welcome reception on the 12th November, as well as an excursion and banquet on the 14th of November. On the 13th of November there was an APA award ceremony and an additional seven talks given by young scientist APA prizewinners.

APA Awards

The 7th APC provided the forum in which the APA awards for 2011 and 2012 were awarded. This time round there was the inaugural APA Masuhara award, two APA-awards and one APA distinguished achievement award. For the young scientists there were 7 awards this time round. This is because the caliber of the nominees was so high that it was decided, rather than split the result on a hair-width result, we should honor the great achievements of the young scientists by awarding an extra prize. The awards given at the APC are listed below.

APA Masuhara Award
Awardee: J. Hofkens Katholieke University Leuven
Talk Title: The power of one: What can we learn by looking at single molecules?

APA Award
Awardee: Pi-Tai Chou National Taiwan University
Talk Title: Harvesting materials; New insights into fundamental and applications

APA Award
Awardee: S. Das National Institute of Interdisciplinary Science and Technology
Talk Title: Photoresponsive soft materials

APA Award for the Distinguished Achievement.
Awardee: Kazuhiko Mizuno Nara Institute of Science and Technology (NAIST) for Developments in Synthetic Organic Photochemistry and Distinguished Achievements to the APA

The APA and APA Young scientist awardees

APA Young Scientist Awards

Young Scientist Awards for 2011

Awardee: Cheng Yang Osaka University, Sichuan University. Talk Title: Supramolecular photochirogenesis with native and modified cyclodextrins

Awardee: Katsuyoshi Ikeda Hokkaido University. Talk Title: Plasmonic spectroscopy and photochemistry at atomically defined metal surfaces

Awardee: Syoji Ito Osaka Univeristy. Talk Title: Localization of photochemical reactions in solution with radiation pressure

Young Scientist Awards for 2012

Awardee: Timothy William Schmidt University of Sydney. Talk Title: Photochemical upconversion for thin film solar cells

Awardee: Sobhan Sen Jawaharlal Nehru University. Talk title: Understanding dynamics and interactions in DNA.

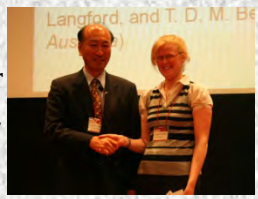
Awardee: Justin Hodgkiss University of Victoria Wellington. Talk Title: Optical probes of photocurrent generation in organic photovoltaic cells

Awardee: Satoshi Habuchi King Abdulla University of Science and Technology. Talk Title: Single molecule studies in polymeric materials

Langmuir Poster Awards:

Awardee: Mr. Kojirou Fuku (Osaka University, Japan)
Poster: PII-37 "Enhanced Catalytic Performance by Localized Surface Plasmon Resonance of Size-controlled Ag Prepared on Mesoporous Silica Using Microwave Heating" K. Fuku, R. Hayashi, T. Kamegawa, K. Mori, and H. Yamashita (Osaka University, Japan)

Awardee: Ms. Heather F. Higginbotham (Monash University, Australia)
Poster: PI-38 "Development of Water-soluble Substituted Naphthalene Diimides for Biological and Single Molecule Applications" H. F. Higginbotham, C. Yeung, L. Martin, S. J. Langford, and T. D. M. Bell (Monash University, Australia)



Awardee: Mr. Pyosang Kim (Yonsei University, Korea)
Poster: PII-55 "The Relationship between Exciton Delocalization and Excited-state Conformational Dynamics in Linear and Cyclic -Conjugated Oligothiopehenes" P. Kim, M.-C. Yoon, M. Iyoda, and D. Kim (Yonsei University, Korea and Tokyo Metropolitan University, Japan)

Awardee: Mr. Xu Shi (Hokkaido University, Japan)
Poster: PII-31 "Plasmon Resonant Enhanced Photocurrent Conversion and Water Oxidation with Gold Nanoisland Loaded Titanium Dioxide Photoelectrode" X. Shi, K. Ueno, and H. Misawa (Hokkaido University, Japan)

Awardee: Dr. Kym Lewis Wells (Nanyang Technological University, Singapore)
Poster: PI-36 "Spectral Diffusion in Chlorophyll a Measured by 2D Optical Spectroscopy" K. L. Wells, Z. Zhang, J. Rouxel, and H.-S. Tan (Nanyang Technological University, Singapore)

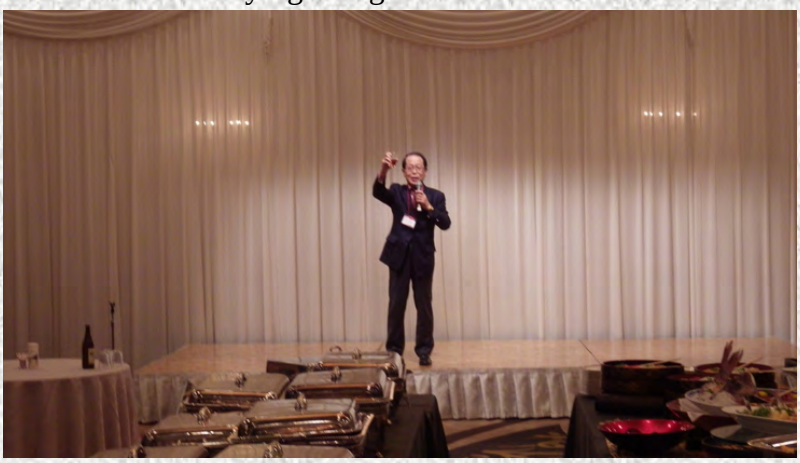
Conference excursion. 大阪城, Ōsakajō 14th Novemebr 2012

The conference excursion was to Osaka Castle and was attended by many of the international delegates, despite the cold weather – which some of us found to be a pleasant change from our tropical homes.

The tour to Osaka castle started at ~3-00pm with a bus ride from the conference site to the castle. In a highly civilized manner beer was served on the bus. After arrival at the castle car-park a short 10 minute walk found us all shivering our way into sight of the castle, where we stopped for a brief photo-shoot. Then on into the warmth of the castle itself where there is a multistory museum depicting the history of the castle. From floor to floor we could learn the following:

Osaka Castle was an emblem of the power of Hideyoshi Toyotomi, which was built in 1583. Hideyoshi, used the castle as his stronghold from which he ended a series of wars which had continued for more than one century, unifying the entire nation of Japan. After Hideyoshi died, his chief retainer, Ieyasu Tokugawa, became Shogun and establishing the Shogunate in Edo (Tokyo). In 1615, Ieyasu destroyed the Toyotomi family and Osaka Castle during the Summer War of Osaka.

Tokugawa reconstructed Osaka Castle and his descendents controlled it until 1868, when the Tokugawa Shogunate lost power. In 1931, the Main Tower of the Castle was reconstructed in the center of Osaka Castle, with funds raised by citizens. The current Main Tower is the third generation. It follows after the Main Toyotomi Tower, which was destroyed during the Summer War of Osaka, and the Tokugawa tower, which was struck by lightning and was burned down.



APA President Professor Minjoong Yoon opens the APC Banquet

The trip was a great success enjoyed by all who attended. After the trip the bus returned the delegates for the banquet.

The banquet began at 18-30 and was opened by APA President Minjoong Yoon. After an excellent buffet spread and plenty of Sake the party ended at 8-30pm allowing the delegates some time to rest for the next day's sessions.

Many thanks are owed to Professor Majima, Professor Kitamura and their organizing team and helpers!

CAV2012 International Conference on Cavitation 13th – 16th August 2012

http://www.cav2012.sg/

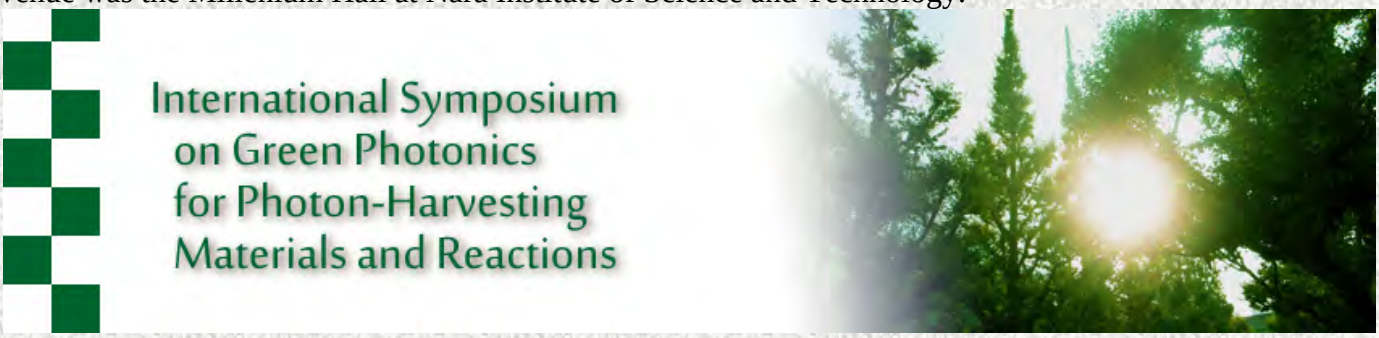
CAV2012 was held in Singapore this year and attracted ~300 delegates from mainly overseas. The event was held in Novtel in Clark Key, which is a popular drinking and eating area next to the Singapore River. The event was highly successful thanks to the hard work of the two Chairs, Professor Khoo Boo Cheong and Professor Claus Dieter Ohl. Also the event was assisted by sponsorship from Dynamic, Zugo Photonics, Specialised Imaging, Newport, CAD-IT Consultants, Springer, Nanyang Technological University and Lam Research. As a result of the good attendance and generous sponsorship the event carried several social gatherings with plentiful food and drinks.

Subjects of interest to photochemists were covered, including sono-luminescence, laser-material interactions, photoacoustics etc. etc. The entire proceedings are available free of charge at the following web-site: http://cav2012.sg/proceedings/index.html (click on the table of contents link).

International Symposium on Green Photonics for Photon-Harvesting Materials and Interactions.

From Kiyomi Kakiuchi NAIST.

We had a small international symposium after APC 2012 here, at Nara Institute of Science and Technology (NAIST) inviting three the APC attendees, Prof. Michael Oelgem ller, Prof. Eric Wei-Guang Diau, and Prof. K. George Thomas (see, http://mswebs.naist.jp/greenphotonics/isgp2012/index.html). The venue was the Millenium Hall at Nara Institute of Science and Technology.



Green Photonics is a pertinent research topic in the field of materials science, which draws on science and technology for efficient use and generation of photons with various kinds of nanometer-scaled materials. The Graduate School of Materials Science, in the Nara Institute of Science and Technology, (NAIST) has successfully launched an initiative research project for Green Photonics Research in 2011 under governmental financial support. The International Symposium on Green Photonics for Efficient Photon-Harvesting Materials and Reactions was held as a part of this research project. This symposium provided all participants with a precious chance to touch advanced scientific topics and scope for future research in materials science, ultimately contributing to the sustainable and lasting development of our societies.

GSAS Session on Organic Solar Cells, Taipei, Taiwan, Sept 18-21

From Evan Williams IMRE.

The Global School for Advanced Studies (GSAS) held a session on Organic Solar Cells from September 18-21, 2012. The Workshop was held at the National Taiwan University under the Co-Directorship of Prof. Wei-Fang Su (Materials Science and Engineering Department).

Session topics included the rational design of molecular and polymer materials, spectroscopy and characterization, and device fabrication including large area organic photovoltaics (OPV). These topics allowed for an all-inclusive evaluation and discussion on OPV processes and technology as evidenced by talks given by: Prof. Luping Yu (University of Chicago, Chemistry Dept.) on Organic Single Molecular Junction and Bulk Heterojunction leading into How to design highly efficient low band gap solar cell polymers; Prof. Kilwon Cho (POSTECH, Department of Chemical Engineering) on High Efficiency Organic Photovoltaic Solar Cells via Nano-Morphology Control of Photoactive Layers; and Dr. Yulia

Galagan (Holst Centre) on Large Scale Manufacturing. The complete list of speakers and lectures can be found at

http://www.gsasprogram.org/index.php?option=com_content&view=article&id=121&Itemid=603.

The session program included roughly two days for lectures and a day and a half for session scholars to develop and present research proposals. This lead to a very dynamic and intense workshop atmosphere with extensive interaction between the session scholars and fellows. The research proposals were well received and opportunities to carry out the proposed research at laboratories in Taiwan are being pursued. The local organizers provided tremendous hospitality with wonderful dining experiences and a tour of the national palace museum and the Danshu waterfront area.

GSAS was launched in 2006 under the directorship of Prof R.P.H. Chang (Professor of Materials Science and Engineering, Director of Materials Research Institute, Northwestern University) and is jointly operated and funded by international partners.

Previous GSAS sessions include sessions on advanced solar cells held in Taiwan (2006) and Australia (2008) and a session on graphene, held in France (2011). GSAS has a stated dual mission to 1. Address global challenges such as energy, environment, health, and security, and 2. Build global leadership by providing young researchers with opportunities to collaborate across disciplines and within intercultural settings. More information about GSAS can be found at http://www.gsasprogram.org/.

The third edition of the MRS Trilateral Conference on Nanotechnology Applications in Energy, Water, and Healthcare, Mumbai, India, Nov 19-21

From Evan Williams IMRE.

The Materials Research Societies (MRS) of Singapore (MRS-S), China (C-MRS) and India (MRSI) gathered at IIT Bombay from Nov 19-21, 2012 for the third edition of the MRS Trilateral Conference on Nanotechnology Applications in Energy, Water, and Healthcare; the previous editions were held in Singapore (2010) and Shanghai, China (2011). Talks on methods and technology for cleaning drinking water by Prof T. Pradeep (IIT, Madras) and Prof. Tai-Shung Chung (National University of Singapore)

inspired great discussion. Other exciting talks included dr. Baldev raj's talk on "paradigm changes in functionalizing engineering surfaces for corrosion mitigation", Prof Pooi See Lee (Nanyang Technological University) talk highlighting electrochromic materials for advanced energy devices, and Prof. Hui Ming Cheng's (CAS) talk on "Energy storage of graphene-based materials".

Clockwise from top left, Conference delegates at the temple of Sri Sri Radha-Rasabihariji, violin recital by Ms. Sunita Bhuyan, sculpture inside a cave on Elephanta Island, the Gateway of India and the Taj Hotel.

The hospitality was fantastic with nightly cultural performances including a Kathak dance recital by Mrs. Ranjana Phadke and a violin recital by Ms. Sunita Bhuyan, lab tours of the Centre of Excellence in Nanoelectronics, buffet dinners in the garden and city tours including stops at the temple of Sri Sri Radha-Rasabihariji, Juhu Beach, and a trip to Elephanta Island.

Regional Focus – APA Australia & New Zealand.

Introduction to Regional Focus

The regional Focus section is intended to give information on the activities of the APA members in different areas of the Asian and Oceanian geographic location. This is an opportunity for people to disseminate and learn from the activities in other regions. Every issue of the newsletter we will be inviting a different region to highlight a few of their activities, big or small, so that APA as a whole can potentially interact better over the catchment area of APA members. It is really up to the different regions to decide on the length and format of the regional focus when it becomes their turn.

Regional Focus - Photochemistry in Australia and New Zealand

(Ken Ghiggino, University of Melbourne, and Michael Oelgemöller, James Cook University)

Introduction

There has been a long tradition of photochemistry research in Australia and New Zealand from the early years of the 20th Century and many research institutions have some programs in photochemical science. The high activity in photochemistry not only arises from the personal interests of researchers, but from the geography which places much of Australia in one of the highest solar flux regions on earth which has important implications for developing solar energy conversion and storage applications but also in photo-protection of materials. Australia and New Zealand were foundation members of the APA and have hosted several international photochemistry meetings including the 6th Asian Photochemistry Conference (Wellington, New Zealand, 2010) and the 22nd International Conference on Photochemistry (Cairns, Australia, 2005). While it is not feasible to list all the photochemistry research programs underway in this short article, we describe below a selection of activities that we hope can be expanded in a future edition of the Newsletter.

Major centers for photochemistry research are located in the Universities and in the national research laboratories such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO) in Australia and the Crown Research Institutes in New Zealand. Often there is collaboration between organisations, both nationally and internationally, for major research programs. We welcome opportunities for visits to our laboratories by photochemists in the Asia and Oceania region. Some examples of research currently under way are listed below divided into the geographical area where they are located.

New Zealand

A/Prof Gerald Smith at **Victoria University of Wellington** and associates at **Industrial Research** have been studying the effects of bulky substituent groups on the dimerization/aggregation of a series of merocyanine molecules which have large first order hyperpolarizabilities. Molecular aggregation reduces their bulk nonlinear susceptibilities when incorporated into thin polymer films and may affect their photostabilities thereby limiting their utility in nonlinear optical devices. This work has been supported by some calculations made by **Prof Keith Gordon** at the **University of Otago**. **A/Prof Gerald Smith,** who's group has been also determining the second order hyperpolarizabilties of some related molecules, has identified photoproducts of hydroxycoumarins occurring in lignocellulosic fibres and characterised their fluorescence. These molecules may contribute to the photoyellowing and phototendering of these materials.

Also at **Victoria University of Wellington**, **Dr Justin Hodgkiss** has recently arrived and built an ultrafast optical spectroscopy laboratory. Justin's group uses ultrafast transient absorption and photoluminescence spectroscopy to interrogate the photophysics of organic semiconductors, particularly photocurrent generation in organic solar cell materials.

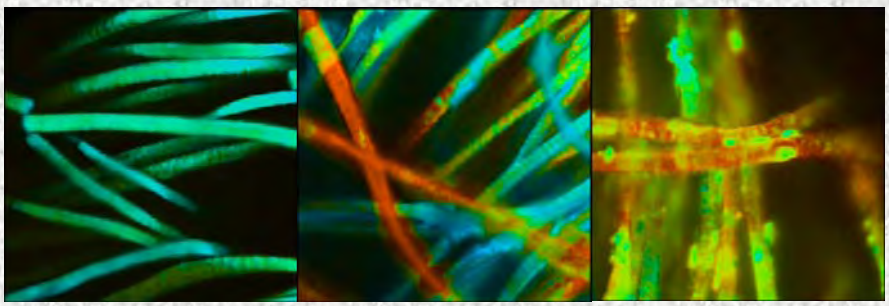
At **University of Otago**, **Prof Keith Gordon**'s group have used nanosecond time-resolved resonance Raman to probe excited states in metal polypyridyl complexes. They have also used resonance Raman spectroscopy to examine the transitions of: porphyrin based systems that have utility in solar cells in collaboration with Prof Max Crossley (Sydney), Prof David Officer and Dr Attilla Mozer (Wollongong); organic dye materials in collaboration with Andy Holmes (Melbourne) and Prof Paul Dastoor (Newcastle); metal complexes with Prof Paul Burn's group (Queensland). Their spectroscopic work is supported by quantum calculations.

Dr Cather Simpson's group in the Photon Factory at the **University of Auckland** uses ultrafast laser pulses to study how molecules convert light to useful forms of energy, including mechanical motion and heat. Ultrafast transient absorption spectroscopy is helping to understand how the first picosecond or two of dynamics subsequent to the absorption of light can have a major impact on the photostability of the red lake pigments over hundreds of years, and on the ability of self-assembled complexes to act as hardy dye sensitizers for solar cells. Researchers in the Photon Factory also exploit the short time scale and very high intensity of these pulses in micromachining and microfabrication in a wide range of academic and industry projects.

At **Massey University**, **Dr Mark Waterland** and his group exploit resonance Raman spectroscopy to probe excited stated dynamics in the Franck-Condon region using a time-domain wavepacket description of resonance Raman intensities. Mark has applied these techniques to a family of dippyrin compounds synthesized by A/Prof Shane Telfer's group at Massey University.

Victoria (Australia)

At the **University of Melbourne** a range of photochemistry based research projects are in place through the ultrafast and microspectroscopy laboratories located in the School of Chemistry with lead investigators **Prof Ken Ghiggino** and **A/Prof Trevor Smith**. These projects include photosynthetic mimics, polymer photochemistry and high-resolution fluorescence microscopy. Other research programs are undertaken at Melbourne in the laboratories of **Prof Paul Mulvaney** (plasmonics and nanoscience) and **Prof Andrew Holmes** (organic photovoltaics) at the Bio21 Institute. At **Monash University**, **Dr Toby Bell** has recently established an active research group in single molecule fluorescence spectroscopy while **Prof Yi-Bing Chen, Prof Leon Spiccia** and **Dr Udo Bach** oversee programs in dye sensitized solar cell development. At **Deakin University, Prof Neil Barnett** leads a group in chemiluminescence and spectroscopy. The **CSIRO Materials Science and Engineering** laboratory at Clayton has major research programs in materials discovery, characterization and large area printing of organic photovoltaics led by **Dr Gerry Wilson** and **Dr Scott Watkins**.



***Images**: Time-resolved fluorescence confocal micrographs of conjugated polymer coated wool fibres (Source: Dr Xiaotao Hao and A/Prof Trevor Smith, University of Melbourne)*

An example of a major collaborative research program is the **Victorian Organic Solar Cell consortium (VICOSC)** involving researchers from the University of Melbourne, Monash University, CSIRO and several companies including Bluescope Steel, Securency, Innovia and Bosch with the objective to develop prototype organic solar cells printed on plastic. This vertically integrated consortium is developing both printable bulk heterojunction and dye sensitized solar cells and activities range from materials discovery to cell manufacturing. Further information about the consortium is available from the website http://www.vicosc.unimelb.edu.au/ (contact: Dr David Jones, djjones@unimelb.edu.au).

***Images**: Printing organic photovoltaic cells (Source: VICOSC, Melbourne)*

Queensland (Australia)

The photochemical activities at **James Cook University (JCU)** are located within the School of Pharmacy and Molecular Sciences in Townsville. **A/Prof Michael Oelgemöller**'s research is dedicated to applied and green photochemistry. His interests include the development of new photochemical synthesis tools, synthetic photochemistry, photoinduced delivery systems and photocatalytic water treatment. His group is known for its work on solar chemistry, *i.e.* the implementation of solar energy in chemical production processes, and microflow photochemistry, *i.e.* photochemistry in microstructured reactors. The research interests of **Prof Beverley Glass** are centered around the photo- and thermal stability of drug and cosmetic substances and their formulations. The work involves investigating their in-use stability, including the effects of transport, storage and repackaging. Exposure of drugs to environmental conditions can cause photo-oxidation to occur, resulting in discoloration of tablets, which may compromise the quality of repackaged drugs.

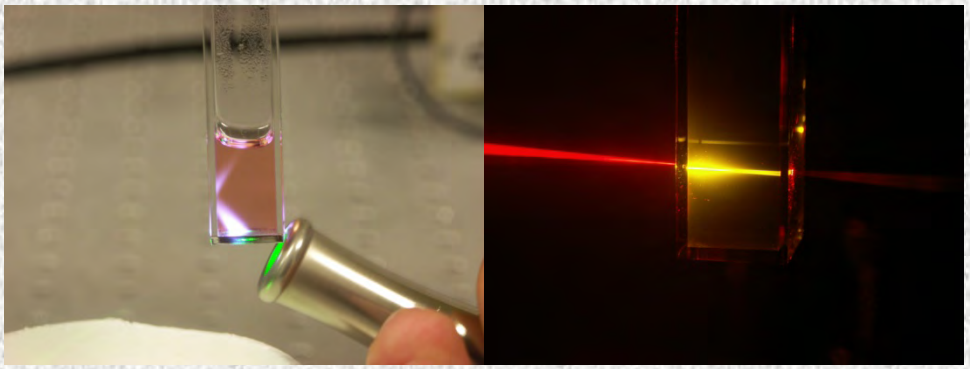
***Images**: Solar reactors, microflow photoreactor and photostability testing (source: JCU, Townsville).*

The **University of Queensland (UQ)** in Brisbane is hosting both, the Centre for Organic Photonics and Electronics (COPE) and Centre for Biophotonics and Laser Science (CBLS). **Prof Paul Burn** has a long standing interest in organic optoelectronic materials complexes for lighting and technological applications. Similarly, **Prof Paul Meredith**'s activities span from conducting plastics, molecules for light harvesting and improved solar harvesting to understanding biological mammalian photoprotectants. **Dr Evan Moore**'s research interests are focused on the development of organic lanthanide complexes as emitters for applications in high technology lighting and molecular imaging. **Prof Halina Rubinsztein-Dunlop** is an expert in the fields of nano-optics, laser science, quantum

atom optics and laser micromanipulation. Likewise, **A/Prof Mark Riley** has a strong research background in the study of vibronically coupled electronic states, essential for understanding the excited state dynamics and internal conversion processes that occur in electronically excited states before radiative or non-radiative relaxation.
Additional photochemical research activities exist at the **Queensland University of Technology (QUT)** in Brisbane. **Dr Hongxia Wang** has been very active in the area of dye sensitised or semiconductor quantum dot sensitized solar cells. Similarly, **Dr Kathleen Mullen**'s research interests span from supramolecular chemistry and molecular recognition, to light activated sensors, switches and shuttles. The Applied Optics and Nanotechnology group headed by **Dr Esa Jaatinen** has been actively investigating the optical properties of noble metal nanoparticle ensembles used as photocatalysts and surface enhanced Raman sensors. His group also has interests in Quantum Dot (QD) microlasers for biological imaging. **A/Prof Geoffrey Will** has interests in photoactivated devices including dye sensitised solar cells, photochemical synthesis, and photocatalysis. Likewise, the activities of the group by **A/Prof Dennis Arnold** involve the synthesis and application of porphyrins and related macrocycles.

New South Wales (Australia)

Researchers in the School of Chemistry at the **University of Sydney** are undertaking a broad range of studies in molecular spectroscopy and photochemistry. **A/Prof Tim Schmidt** has research interests in the spectroscopy of interstellar molecules and also in studies of materials for molecular electronics. Recently in collaboration with **Prof Max Crossley** a new range of efficient energy upconversion systems based on triplet-triplet annihilation have been developed and characterized. Schmidt's group have demonstrated improvements in the efficiency of amorphous silicon and organic photovoltaic devices using photochemical upconversion. **Prof Max Crossley** also has long-term interests in the synthesis and study of photosynthetic mimics based on light-harvesting porphyrin arrays. The research of **Prof Scott Kable** focuses on the details of photodissociation and photoisomerization mechanisms of atmospherically relevant molecules. His work recently revealed a new photochemical route to organic acids in the atmosphere.



***Images**: Fluorescence resulting from energy upconversion systems based on triplet-triplet annihilation (Source: A/Prof Tim Schmidt, University of Sydney)*

At the **University of Wollongong**, the activities of **Prof Attila Mozer** involve the development of new architectures for donor/acceptor organic solar cells and advanced characterisation using time-resolved and frequency modulated optical and electrical probes.

South Australia (Australia)

In the School of Chemistry and Physics at the **University of Adelaide**, **A/Prof Gregory F. Metha, Dr Tak W. Kee** and **Dr David M. Huang** work in the area of photochemistry. A/Prof Metha's research investigates the chemical and physical properties of nano and sub-nano metallic particles. All the studies involve the use of laser ablation techniques to generate metal cluster molecules in gas and solution phases, and the application of various

spectroscopic methods to elucidate their structures and properties, particularly chemical reactivity. Quantum computational methods are also applied to calculate structures and properties of nano-scale particles.

Drs **Tak W. Kee** and **David M. Huang** collaborate to perform ultrafast spectroscopic experiments and molecular dynamics simulations to elucidate the exciton migration and charge transfer processes in organic photovoltaics. Some of the examples of recent work include using molecular dynamics simulation to understand self assembly of poly(3-hexyl thiophene) to form nanofibres and the spectroscopic properties of these nanofibres. In addition, exciton migration in the nanoparticles of the conjugated polymer MEH-PPV was recently studied using ultrafast fluorescence anisotropy. Using a Monte Carlo energy migration model, we were able to offer insight into the exciton hopping mechanism.

Further information about the photochemistry based work at the University of Adelaide is available from the website http://www.laserchemistry.adelaide.edu.au/

Photo: A/Prof Trevor Smith (University of Melbourne) and research group members during an outing to Hanging Rock, Victoria with recent visitor Shuichi Toyouchi (from Prof Hiroshi Fukumura's laboratories, Sendai, Japan).

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