

# International Society of Heterocyclic Chemistry

## 2007 Newsletter

### Message from the President

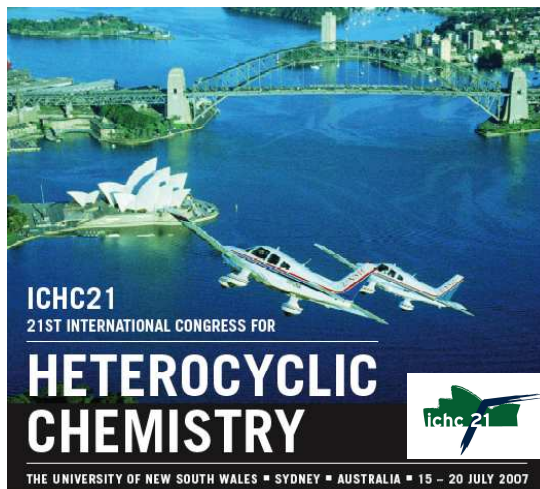
As the current President of the ISHC, I am writing to inform you of the developments of the past year, and to look ahead to 2008. The ISHC receives continued support from its enthusiastic and committed membership. Please encourage your students, colleagues and your present and former collaborators to join us!

### The ISHC on the Internet

Please visit the ISHC's webpage at <http://www.ishc-web.org> for information concerning the Society. This website also provides links to congress pages, newsletters etc. Thanks to our Webmaster Oliver Kappe, for maintaining our website.

Feel free to contact your new President, Jeff Aube ([jaube@ku.edu](mailto:jaube@ku.edu)) by email. Please e-mail any ideas and suggestions on any aspect of the operation of the ISHC by logging into the www home page.

### The 21st ISHC Congress in Sydney, Australia



The 21st ISHC Congress took place at the University of New South Wales in Sydney, Australia on July 15-20, 2007. The Congress Chairs were Professors David Black and Roger Read and Dr Kate Joliffe was the Program Chair. Approximately 420 people attended the conference from 42 different countries with 70% of the delegation coming from outside Australia. This was an outstanding scientific meeting with 240 posters, 72 oral presentations in addition to the plenary and invited keynote speakers. Importantly, the **ISHC Senior Award** (sponsored by Pfizer) was presented to **Professor K. C. Nicolaou** (Scripps Research Institute) and the **ISHC Katritzky Junior Award** (sponsored by GSK) was presented to **Professor David MacMillan** (Princeton).

#### The following distinguished scientists were Plenary Lecturers at the Congress:

Professor Scott Denmark USA	Professor Masahiro Murakami Japan
Professor Takuzo Aida Japan	Dr Dave Tschaen USA
Professor K.C. Nicolaou USA	Professor David MacMillan
Professor Mikiko Sodeoka Japan	Professor Thorsten Bach Germany
Professor Rick Danheiser USA	Professor Shengming Ma China
Professor Andrew Holmes Australia	

#### In addition the following Invited Lecturers participated:

Professor Alan Rowan Netherlands	Dr Toshiake Mase Japan
Professor Thomas Carell Germany	Professor Rajender Varma USA
Professor Philip Gale UK	Professor Hisao Nishiyama Japan
Professor Cynthia Burrows USA	Professor Pierre Vogel Switzerland
Professor Lutz Tietze Germany	Professor Ferenze Fülöp Hungary
Dr Naresh Kumar Australia	Professor Gary Weisman USA
Professor Roderick Bates Singapore	Professor Takeaki Naito Japan

**22nd ISHC Congress  
in St John's,  
Newfoundland,  
Canada  
August 2 - 7, 2009**

The 22nd ISHC Congress will take place at the Delta Hotel and St. John's Convention Centre St. John's, Newfoundland and Labrador, in Canada on August 2-9, 2009. The Congress Chair will be Professor Mohsen Daneshtalab, who will succeed Prof. David Black as Vice-President of the ISHC in September 2008.

**Website:**

<http://www.ichc2009.ca>

Please send Prof. Daneshtalab your suggestions for speakers.

*Contact information is:*

Prof. Mohsen Daneshtalab  
School of Pharmacy,  
Memorial University of  
Newfoundland

St. John's, NL, A1B 3V6,  
CANADA

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Fax: (709)-777-7044

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I thank David, Roger and Kate and their organizing committee for their tremendous enthusiasm and hard work to make this Congress a resounding success. If you wish to congratulate David Black and his colleagues for a terrific job, please contact him at the following address:

Professor David St. Clair Black  
School of Chemistry  
University of New South Wales  
Sydney 2052, Australia  
e-mail: [d.black@unsw.edu.au](mailto:d.black@unsw.edu.au)

In addition to the feast of heterocyclic chemistry provided by the line-up of distinguished speakers the Sydney harbour cruise was also memorable displaying the pristine beauty of this glorious city on a brisk winter day under a clear blue sky. The Sydney skyline looked spectacular with the Sydney Harbour Bridge and the Sydney Opera House providing truly imposing icons for the City of Sydney.

Two outstanding members of our Society were honoured during the Congress banquet held at Dockside Restaurant on the vibrant Darling Harbour. Our Past President, Professor Marco Ciufolini and Professor Girolamo Cirrincione, Chair of the 2005 ICHC in Palermo, Sicily, received plaques recognizing their enthusiastic contributions to the ISHC.

## **ISHC Membership**

Stan Lang, the Society's treasurer, reported that the membership stands at 560 in 2007 from 592 in 2006. Although this still represents a substantial number of members, there has been a decline in numbers in recent years. Considering the enormous volume of research in heterocyclic chemistry being done worldwide, we believe the Society should have even more members, and it is important that we try to increase our membership. Therefore the Society must continue to actively recruit new members worldwide in the years to come, and you can help by trying to convince your colleagues, coworkers, and former collaborators that membership in the ISHC has important advantages, several of which are outlined below. Membership would be particularly advantageous for those colleagues planning to attend the St. John's Congress in 2009. Also, note that a graduate student membership is relatively inexpensive. Please encourage your students to join since this is a good way to recruit the next generation of heterocyclic chemists into the Society.

### *Some Benefits Associated with Membership in the ISHC*

1. Participation in the Congress at significantly reduced registration rates.
2. Obtain Congress abstracts of papers at no cost even if not in attendance.
3. Receive Lectures in Heterocyclic Chemistry (complete plenary lectures of the biannual ICHC Congresses).
4. Subscribe to Heterocycles at 20% discount.
5. Receive 25% discount from Elsevier on many different books.
6. Free annual copy of Progress in Heterocyclic Chemistry (see below).

## Progress in Heterocyclic Chemistry

Membership in the Society entitles members to a free annual copy of Progress in Heterocyclic Chemistry ("PHC"). Publication of the latest volume (Vol. 19) is imminent thanks to the sterling effort of the editors, Gordon Gribble and John Joule and their team of authors. We urge you to be certain that your library is subscribing to Progress in Heterocyclic Chemistry so that others in your institution can benefit from this excellent yearly review of the heterocyclic chemistry literature.

For your information, the Editorial Advisory Board for PHC for Volume 19 is shown below. I welcome suggestions for future members of the Board, or for specific research topics that might be considered for inclusion in future volumes.

D. Black, University of New South Wales, Australia  
M. Brimble, University of Auckland, New Zealand  
M. A. Ciufolini, University of British Columbia,  
Canada  
T. Fukuyama, University of Tokyo, Japan  
A. Fürstner, Max-Planck-Institut – Mülheim,  
Germany  
R. Grigg, University of Leeds, UK  
H. Hiemstra, University of Amsterdam, The  
Netherlands  
D. W. C. MacMillan, Princeton, USA  
M. Shibasaki, University of Tokyo, Japan  
L. Tietze, University of Göttingen, Germany  
P. Wipf, University of Pittsburgh, USA

## Society Finances

The financial condition of the Society is reasonably solid. No further increase will be necessary in the coming year. The 2008 membership dues will thus remain the same level as in 2004: US \$45.00 for regular members and US \$20.00 for student members. We will try to hold dues at this level for as long as possible.

## Membership Dues

Please notify us of any address changes or corrections when you submit your 2008 dues to our Treasurer, Stan Lang, who also maintains the membership roster. Please also provide him with

your E-mail address if you have not already done so. Membership information and methods of payment can be found on the ISHC web site:

<http://www.ishc-web.org>.

Once again, the annual dues are US \$45.00 (active member) and US \$20.00 (certified predoctoral student member). Multiple year membership subscriptions are encouraged. Please forward your dues by credit card, check, or money order in US dollars made payable to:

*The International Society of  
Heterocyclic Chemistry,*

and forward to Stan Lang. Please note that Stan has recently changed address so please use the address listed below. You can also contact Dr. Lang by email for direct wire transfer or credit card use or for additional information.

Dr. Stanley Lang  
Treasurer, ISHC  
Director, Process Chemistry  
Ricerca Biosciences LLC  
POBox 1000  
7528 Auburn Road  
Concord, OH 44077-1000 USA  
Email: [Lang\\_s@ricerca.com](mailto:Lang_s@ricerca.com)

Alternatively, send the equivalent *in Euros only* to:

Prof. Dr. Johannes Fröhlich, Secretary ISHC,  
Dean, Faculty of Technical Chemistry  
Chemiehochhaus, BA, 1. Obergeschoß  
Vienna Institute of Technology  
Getreidemarkt 9, A-1060 Vienna, Austria Tel.  
+43-58801-10000  
Fax. +43-58801-10099  
E-mail: [jfroehli@pop.tuwien.ac.at](mailto:jfroehli@pop.tuwien.ac.at)

Colleagues residing in the **Pacific Region** who wish to remit their dues in Japanese Yen may forward their payment *in Yen* (Yen 5,315 / regular member; Yen 2,362 / student member) to Professor Shuji Kanemasa:

Professor Shuji Kanemasa  
Institute of Advanced Material Study  
AKyushi University, 6-1 Kasugakoen  
AKasuga 816-8580, Japan  
Tel/Fax +81-929583-7802  
E-mail: [kanemasa@cm.kyushi-i.ac.jp](mailto:kanemasa@cm.kyushi-i.ac.jp)

Multiple year membership subscriptions are

encouraged! For additional information regarding membership and methods of payment please consult the ISHC website:

<http://www.ishc-web.org>

Those who wish to pay the ordinary dues in US dollars directly to the Treasurer of the Society should send their dues to Stan Lang (see above).

### **Meeting of the ISHC Executive and Advisory Committee in Sydney, July 2007**

The Executive Committee held its biannual meeting on Sunday July 15<sup>th</sup>, 2007 just prior to the opening of the 2007 22<sup>nd</sup> ICHC. In attendance were: Margaret Brimble, President; Jeff Aube, President-Elect; Marco Ciufolini, Past President; Johannes Froehlich, Secretary; David Black, Vice-President; Stanley Lang, Treasurer (by phone); and Kiyoshi Tomioka, Advisory Committee for Asia. Mike Martinelli, Peter Wipf, Oliver Kappe, Jurgen Liebscher and Henk Hiemstra (all members of the Advisory Committee) gave their apologies.

#### **Election Results**

The results of the eballot were disclosed at the meeting and the results are as follows:

##### *Newly Elected to the Executive Committee:*

- President-Elect: Richard Taylor (UK)
- Treasurer: Stanley Lang (USA)

##### *Newly Elected to the Advisory Committee:*

- Americas: Mike Martinelli (USA)
- Europe: Alois Furstner (Germany)
- Asia-Pacific: Tohru Fukuyama (Japan)
- At large: Tomas Hudlicky (Canada)  
Volker Jaeger (Germany)  
Hiroyuki Ishibashi (Japan)

### **Fellows of the Society**

The Constitution of the Society indicates that up to two Fellows can be appointed at each ISHC Congress. Professor Victor Snieckus is the latest recipient of this honour. Previously appointed Fellows are Hans Neunhoeffer, Raymond Castle, Alan Katritzky, Thomas Kappe, Henk van der Plas, Charles W. Rees and Albert Padwa.

I would like to remind you that any ISHC member can make nominations for new Fellows of the Society. The nominee must have been a member of the Society for at least 5 years, and must have made outstanding contributions to the Society and/or to the field of heterocyclic chemistry. Nominations can be sent to the President at any time. Please provide both a letter of nomination and a copy of the nominee's *curriculum vitae*.

### **Closing Remarks**

Finally, I would like to wish you all a happy holiday season and wish you well for your plans for 2007. I thank all of you for your continued support over the past two years and wish Jeff Aube well for his term as President of the ISHC for 2008-9.

Margaret Brimble  
President, ISHC  
Auckland, New Zealand  
November, 2007

**Winner of the 2007 ISHC Senior Award in Heterocyclic Chemistry:  
K. C. Nicolaou (Scripps Research Institute, USA)**

K.C. Nicolaou was born on July 5, 1946, in Cyprus where he grew up and went to school until the age of 18. In 1964, he went to England where he spent two years learning English and preparing to enter the University. He studied chemistry at the University of London (B.Sc., 1969, Bedford College, First Class Honors; Ph.D. 1972, University College, with Professors F. Sondheimer and P.J. Garratt). In 1972, he moved to the United States and after postdoctoral appointments at Columbia University (1972-1973, Professor T.J. Katz) and Harvard University (1973-1976, Professor E.J. Corey) he joined the faculty at the University of Pennsylvania, where he rose through the ranks to become the Rhodes-Thompson Professor of Chemistry. In 1989, he accepted joint appointments at the University of California, San Diego, where he is Professor of Chemistry, and The Scripps Research Institute where he is the Chairman of the Department of Chemistry and holds the Skaggs Professorship of Chemical Biology and the Darlene Shiley Chair in Chemistry.

His awards and honors include an A.P. Sloan Fellowship (1979), a Camille and Henry Dreyfus Teacher-Scholar Award (1980), the American Chemical Society Philadelphia Section Award (1983), a Guggenheim Fellowship (1984), a Humboldt Foundation US Senior Scientist Prize (1987), an A.C. Cope Scholar Award, American Chemical Society (1987), the Japan Society for the Promotion of Science Award (1988), the Alan R. Day Award, Philadelphia Organic Chemists' Club (1993), the American Chemical Society Award for Creative Work in Synthetic Organic Chemistry (1993), a Pfizer Research Award in Synthetic Organic Chemistry (1994), the Dr. Paul Janssen Prize for Creativity in Organic Synthesis (1994), the Alexander the Great Award, the Hellenic Cultural Society of San Diego (1994), the Rhone-Poulenc Medal of the Royal Society of Chemistry (London) (1995), the William H. Nichols Medal, New York Section-American Chemical Society (1996), the Inhoffen Medal of the Gesellschaft für Biotechnologische Forschung mbH (GBF) (1996), the Ernest Guenther Award in the Chemistry of Natural Products, American Chemical Society (1996), the Chemical Pioneer Award of the American Institute of Chemists (1996), the Linus Pauling Award, Oregon, Portland, Puget Sound Sections-American Chemical Society (1996), the Distinguished Scientist Award, San Diego Section-American Chemical Society (1997), the Decoration of the Order of the Commander of Honor Medal (bestowed by the President of Greece, 1998), the American Chemical Society Esselen Award for

Chemistry in the Public Interest (1998), the Headliner of the Year Award from the San Diego Press Club (1998), the Yamada Prize, (Japan, 1999), the first Aspirin Prize for Solidarity through Chemistry (Spain, 1999), the Max Tishler Prize, Harvard University (2000), the Paul Karrer Gold Medal, Universitat Zurich, Switzerland (2000), the Royal Society of Chemistry Centenary Medal (U.K., 2000-2001), the Ernst Schering Prize, Ernst Schering Research Foundation (2001), the Nagoya Gold Medal of Organic Chemistry, Nagoya University, Japan (2001), the Tetrahedron Prize for Creativity in Organic Chemistry (2002), the ACS Nobel Laureate Signature Award for Graduate Education in Chemistry (2003), the Aristeio Bodossaki Prize, Bodossaki Foundation, Greece (2004), ACS Arthur C. Cope Award (2005), Auburn Section-American Chemical Society Auburn-G. M. Kosolapoff Award (2006), and the Burkardt-Helferich Prize (2006). He is a Member of the New York Academy of Sciences (1987), a Fellow of the American Academy of Arts and Sciences (1993) a Member of the National Academy of Sciences, USA (1996), a fellow of the American Association for the Advancement of Science (1999), and Foreign Member, Academy of Athens, Greece (2001), and holds honorary degrees from the University of Pennsylvania (M.A., 1980), the University of London (D.Sc., 1994), the University of Athens (Ph.D. *Honoris causa*, 1995), the University of Thessaloniki, Greece (Ph.D., *Honoris causa*, 1996), the University of Cyprus (Ph.D., *Honoris causa*, 1997), the Universidad de Alcalá, Madrid, Spain (Ph.D., *Honoris causa*, 1998), the University of Crete, Greece (1998), the Agricultural University of Athens (Ph.D. *Honoris causa*, 2000), the University of Patras, Greece (Ph.D., *Honoris causa*, 2002), and the University of Rome "La Sapienza" (Ph.D., *Honoris causa*, 2004). He was elected Honorary Foreign Member of the Japanese Pharmaceutical Society (1996), an Honorary Professor of the Shanghai Institute of Organic Chemistry, China (1999), and Honorary Fellow, Chemical Research Society of India (2004).

K.C. Nicolaou's research interests focus on chemical synthesis and chemical biology. He is the author or co-author of over 600 publications, 57 patents, and 4 books, the most recent entitled *Classics in Total Synthesis* with co-author Erik J. Sorensen (1996) and *Classics in Total Synthesis II* with co-author Scott A. Snyder (2003). His dedication to chemical education is evidenced by his training of more than 350 graduate students and postdoctoral fellows.

**Winner of the 2007 ISHC Junior Katritzky Award for Heterocyclic Chemistry:  
David W. C. MacMillan (Princeton University, USA)**

Professor David W. C. MacMillan was appointed as the Earle C. Anthony Professor of Chemistry at Princeton University, USA in 2004. He was previously a full Professor at the California Institute of Technology since 2000 having commenced his independent research career at the University of California, Berkeley in 1998. He completed postdoctoral work with Professor David Evans at Harvard and PhD studies with Professor Larry Overman at the University of California, Irvine. His illustrious career has been accompanied by the award of numerous prestigious prizes and honours including the Elias J Corey award for outstanding contribution in organic synthesis, the 2005 RSC Corday-Morgan Medal, the inaugural 2005 Worldwide Tetrahedron Young Investigator Award, the Bristol-Myers Squibb award for organic synthesis, the Pfizer award for excellence in organic synthesis, and awards from Glaxo Smithkline, Eli-Lilly, Novartis, Astra-Zeneca and Boehringer-Ingelheim.

Professor David MacMillan's research is focused on the area of organic synthesis with specific interests in the development of new reaction methods of broad utility to enantioselective synthesis and the synthesis of natural products and biologically important molecules. Organocatalysis is a breakthrough technology, invented by Professor David MacMillan at Caltech, in which small organic molecules are designed and constructed to serve as general catalysts for asymmetric transformations of other substrates. Organocatalysts have been successfully developed by MacMillan for several important reactions including asymmetric variants of Friedel-Crafts alkylations, 1,4- conjugate additions, Diels-Alder reactions, and 1,3-dipolar cycloadditions. These transformations enable an extremely broad range of chiral intermediates to be readily assembled. The broad utility of these new asymmetric reaction technologies has also been demonstrated by the MacMillan group in the construction of complex natural product targets including Erythronolide B, (*S*)-Keterolac, Callipeltoside A, Littoralisone and the cytotoxic metabolite Diazonamide A.

A summary of David MacMillan's accomplishments is provided in the following paragraphs.

**Claisen Rearrangements.** David's first independent scientific contribution to the literature appeared in 1999 (JACS, 1999, 121, 9720). In this study, he demonstrated the powerful effect of Lewis acid catalysis on the Bellus-Claisen rearrangement. This study has broad implications in the eventual asymmetric catalysis of this important rearrangement. Subsequent studies in his laboratory have extended this concept to double cascade

Bellus-Claisen rearrangements that result in the stereocontrolled construction of acyclic building blocks containing three new stereocenters (JACS, 2001, 123, 2448). David has now followed up this advance with the first Claisen process that may be subject to asymmetric catalysis (JACS, 2001, 123, 2911). More recently, David has introduced a new Claisen rearrangement variant (JACS, 2002, 124, 13646) that should be exceptionally useful. Collectively, these studies represent the most important advances in Claisen rearrangement methodology in the last decade.

**Cycloaddition Reactions.** David's second major contribution to the scientific literature appeared in 2000 (JACS, 2000, 122, 4243). In this seminal study the LUMO-lowering effects of iminium ion formation are exploited in the catalysis of the Diels-Alder reaction with chiral amines. This work has been extended to nitrene cycloadditions (JACS, 2000, 122, 9874). David has also found a solution to a long-standing problem of inducing chirality into ketonic dienophiles recently (JACS, 2002, 124, 2459), again exploiting the LUMO-lowering effects of iminium ion intermediates

**Friedel-Crafts and Conjugate Addition Reactions.** Chiral amine catalysis has again been exploited in the design of enantioselective conjugate addition reactions with electron-rich olefins such as indoles (JACS, 2001, 123, 4370), electron-rich aromatic rings (JACS, 2002, 124, 7894), Mukaiyama Michael additions (JACS, 2003, 125, 1192), and the heteroconjugate addition of amine nucleophiles (JACS, 2006, 128, 9328). All of these enantioselective transformations also rely on the LUMO lowering effects associated with  $\alpha,\beta$ -unsaturated iminium ion formation of these chiral amines.

**Chiral Enamine-Based Transformations.** David has also made important contributions to the design of catalytic aldol reactions promoted by proline (JACS, 2002, 124, 6798). While others such as Ben List have taken the lead in this area, David's contributions are excellent from the synthesis application standpoint. These contributions may all be grouped under the title of chiral enamine-based electrophile transformations. Important advances in this area include an enantioselective aldol approach to the synthesis of carbohydrates (Angew. Chem Int Ed, 2004, 43, 2152), new enantioselective  $\alpha$ -carbonyl chlorination (JACS, 2004, 126, 4180),  $\alpha$ -carbonyl fluorination (JACS, 2005, 127, 8826), and  $\alpha$ -carbonyl oxidation with nitrosobenzene (JACS, 2003, 125, 10808),