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Harald Kleine
Martha Patricia Butrón Guillén
Editors

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Introduction

The 28th International Congress on High-Speed Imaging and Photonics (ICHSIP28) was hosted by the University of New South Wales at the Australian Defence Force Academy, Canberra, Australia.

Since 1952, the biennial international meeting on high-speed photography has been held to bring together scientists and researchers who may have different technical backgrounds, but who share one common interest: the recording of highly transient optical phenomena and photonic events. The purpose of this meeting is to exchange ideas and technical information on high-speed recording devices and light sources, as well as the application of these diagnostics to various fields of science and engineering.

This meeting—the 28th instalment of this series—followed many of the traditions established over the last decades, but was also characterized by three significant "firsts": it was the first time it was held "down under" (in fact, it was only the second time that this meeting took place in the Southern hemisphere) and it was the first time it was run under its new name "International Congress on High-Speed Imaging and Photonics" (as decided by the national delegates during the 27th congress in Xi'an, China, in 2006). As in the preceding meetings of this series, the papers, posters and invited lectures presented during this conference outlined the most recent developments in high-speed optical diagnostics and in experimental techniques that use these diagnostic tools. The presented papers clearly demonstrated that the science (and often the art) of high-speed imaging has almost literally opened a new dimension in many research fields. The role of high-speed cameras, for example, can be likened to that of the electron microscope: where the latter has helped to explore new worlds by increasing spatial resolution below the nanometer, the former instruments have helped us to observe processes and phenomena that occur on a nano- to microsecond time scale.

The third "first" was the introduction of a voluntary peer review for submitted papers, which reflects a growing demand for elements of quality control in conference publications. About two-thirds of all papers presented during the congress and published in these proceedings were reviewed by two independent referees prior to submission to SPIE, where the proceedings of this meeting are published as in previous years. Peer-reviewed papers are marked as such in the table of contents.

One-hundred and seven delegates from eleven different countries attended the congress. The fact that more than 80% of these delegates came from overseas demonstrates very clearly the international character of this conference series. A

total of 73 papers and posters were presented, 65 of which are included in this volume.

The contributed papers were classified into the following eight main subject areas:

1. High-Speed Cameras/Streak Tubes
2. Flow Visualization
3. X-Ray Sources and Recording
4. High-Speed Imaging
5. Impact and Ballistics
6. Lasers and Instrumentation
7. Image Processing
8. Photonics

It had been one of the intentions of the organizers of this meeting to give it a distinctively Australian flair. As the congress was held on the campus of UNSW@ADFA, the participants had an opportunity to get a first-hand impression of this unique establishment. The reception at the CSIRO Discovery Centre also highlighted some of the ongoing research activities in Australia. The location of the congress banquet was Old Parliament House, the birthplace of Australian democracy. The excursion took the participants to Tidbinbilla Nature Reserve, where many of us could encounter Australian wildlife in its natural habitat. Several members of the high-speed imaging community showed that their training in taking images of rapidly moving objects could also be advantageously used for obtaining first-class photographs of kangaroos, wallabies, lizards, possums, various birds, and even of the usually very elusive platypus.

During the conference banquet on Wednesday, November 12, the prestigious Photo-Sonics Achievement Award was presented to Dr. Radu Corlan of Vision Research Inc. As Dr. Corlan was unfortunately unable to attend the meeting, the award was accepted on his behalf by his Australian colleague Phiroze Dalal.

During the banquet it was announced that the next congress will be held in 2010 in Morioka, Japan, hosted by Prof. Eiichi Sato of Iwate University. This decision was made during the meeting of the national delegates on Tuesday, November 11.

Many of the activities of the congress would not have been possible without the generous support of various sponsors who contributed to the success of this conference:

- Air Force Office of Scientific Research, Asian Office of Aerospace Research and Development (AFOSR/AOARD) [1]

[1] AFOSR/AOARD support is not intended to express or imply endorsement by the U.S. Federal Government.

- Shimadzu Scientific Instruments (Oceania) Pty. Ltd., Rydalmere, NSW, Australia
- Vision Research, Wayne, NJ, USA
- The University of New South Wales at the Australian Defence Force Academy (UNSW@ADFA), Canberra, Australia

The support granted by these sponsors enabled the organizers in particular to let students and retired scientists participate in the meeting at a significantly reduced registration fee, and hence made it possible to maintain continuity and established traditions while also opening the field of high-speed imaging and photonics to future generations of researchers.

A special acknowledgement is due to recognize the support of SPIE for facilitating the submission of manuscripts and assisting in the compilation of the proceedings.

The preparation of a conference like this requires considerable time and effort, as anybody who has ever organized one will know. It is virtually impossible to attend to all of the tasks without the help of dedicated assistants. Many of these often unsung heroes spend hours and days looking after the many details that such meetings inherently have, and without them, many a conference would have ended a lot less successful than they did.

We consider it therefore appropriate to acknowledge the contributions of:

- Professor John Baird for his generous support for this meeting;
- Mrs. Yvonna Gruszka for her seemingly endless efforts in negotiating with caterers, bus companies, hotels and many other groups and institutions that were involved in this event, and for taking care of the formal duties of registration and conference paperwork;
- Ms. Laura Kristina Kleine Butrón for making her parents smile in the many stressful moments preceding the congress and for helping to pack the conference bags;
- Ms. Karen Leung for assisting in the handling of the financial aspects of the meeting, before, during, and after the conference;
- Mrs. Bettina Odenthal for providing invaluable help during the preparation of the meeting and for making the registration process smooth and efficient;
- Mr. Mike Palmer-Allen for his support and advice regarding the organisation of this meeting;

- Mr. Stefan Brieschenk, Mr. Robert Hruschka, Mr. Gisu Park, Mr. Varun Prakash, and Mr. Sven Wittig for their assistance in the preparation of the Book of Abstracts and for technical support during the congress presentations;

- The staff of the Educational and Technology Services of UNSW@ADFA (Kurt Barnett, Ray Draper, Bill Keegan, Toby Keen, and Clayton McGuire) for helping to prepare posters and notepads for the meeting and for ensuring that all the infrastructure for the presentations was operational;

- Our colleagues and friends at UNSW@ADFA who helped us in the preparation of this meeting;

- The board of referees for reviewing the contributions to this meeting; and

- Special thanks are due, of course, to all of the participants of ICHSIP28, delegates, and exhibitors, for coming the long way to Australia and Canberra and for participating in this meeting.

On behalf of the organizing committee of the 28th International Congress on High-Speed Imaging and Photonics, we would like to express our sincere gratitude to all representatives of the high-speed imaging community who gathered here in Canberra for the congress and made it a successful and memorable event—we look forward to seeing you again in Morioka in 2010 and at subsequent congresses.

Harald Kleine
Martha Patricia Butrón Guillén

ICHSIP28 Participants at Tidbinbilla Nature Reserve (Photo Courtesy of James Walton)

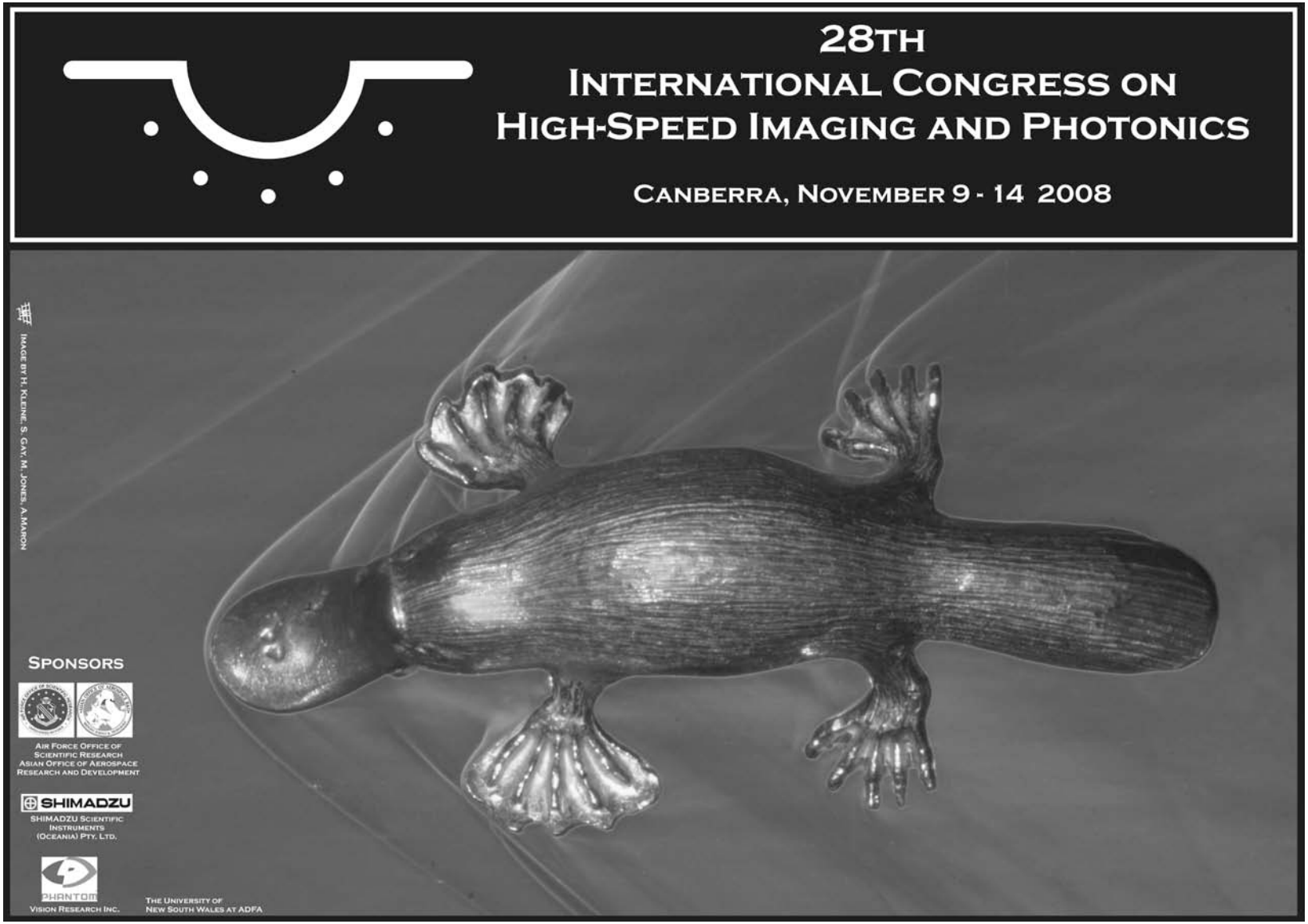
2008 Photo-Sonics Achievement Award

The Photo-Sonics Achievement Award recognizes outstanding contributions in high-speed imaging. The award is presented every two years in conjunction with the International High-Speed Imaging Congress. The winner of the award is presented with a plaque and a framed certificate bearing a citation of the recognized work. The award also carries an honorarium of $5,000 USD which is donated by Photo-Sonics, Inc. in Burbank, California.

The Photo-Sonics Achievement Award is given to an individual who has contributed developments or inventions that have resulted in significant advances in high speed-photo-instrumentation or high-speed imaging. The technical achievements of a group are only considered if one person has contributed substantially to the concept and its development. The recognized work must have been performed in the last five years.

The 2008 Photo-Sonics Achievement Award was presented to Radu Corlan in recognition of his original contributions to the design of CMOS imaging sensors, and for developing innovative embedded technologies that are employed in commercial state-of-the-art CMOS high-speed video cameras. His contributions to high-speed imaging include the design of several large specialized CMOS sensors, a nonvolatile, hot swappable magazine for storing high-speed recordings, a unique high-speed "point and shoot" video camera, and various innovative data interfaces used in commercial high-speed video cameras.

James S.Walton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