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**Mariana Figueiro
Scott Lerner
Julius Muschaweck
John Rogers**
Editors

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Introduction

The International Optical Design Conference (IODC) series, has been held approximately every four years, on a regular basis since 1975, when it was held at Haverford College, in Pennsylvania. Formerly IODC was known as ILDC, with an emphasis on "Lens Design" rather than "Optical Design." The 2014 IODC took place at the beautiful Kohala Coast, just north of Kona, Hawaii.

Over the nearly four decades in which the conference has been held, the IODC has remained the premier forum for exchange of ideas among optical designers. The IODC captures the progress in the continuously evolving fields of imaging optical design, and more recently, illumination optical design. Optics, a discipline as old as science itself, permeates our world today.

As always, the IODC 2014 brought together an international group of experts in the field of optical design, and included many familiar faces, as well as newer practitioners in the field. In an intense four day program filled with outstanding plenary, invited and contributed talks, the attendees shared their insights in a wide variety of areas. The talks covered the whole range from new scientific results in practical topics like tolerancing, and from well-established fields like microscopy to novel, exotic applications.

In what has become a modern tradition, the IODC was co-located with other conferences on related topics: Optical Fabrication and Testing (OF&T) and Computational Optical Sensing and Imaging (COSI). A special highlight was the "Freeform Day" with three full sessions on freeform optics, both from imaging and illumination viewpoints.

The program committee did an excellent job to promote the conference, solicit contributed papers, and to provide high quality reviews of the over 140 submitted papers.

The joint plenary session for all three conferences featured three speakers: Dr. Jeff R. Kuhn from the University of Hawaii introduced us to the Colossus Project, dedicated to finding Earth-like civilizations in the galactic neighborhood; Dr. David Brady from Duke University spoke about the challenge to measure everything—the complete spectral light field at an aperture; finally, Dr. Kevin Rolland-Thompson brought the fields of computational imaging and lens design together, showing us how advances in one field will significantly change the other.

The IODC program had 16 sessions on a wide variety of topics, including 16 invited talks, complemented by a joint poster session with OF&T and COSI on Tuesday night. The overall quality of the presentations was widely regarded as outstanding, up to the high standard that IODC had been setting over the years.

We were fortunate to have several award ceremonies at the conference. Dr. Juan Carlos Miñano received the prestigious Joseph Fraunhofer Award/Robert M. Burley Prize, for his discovery of exceptional new design methods both for imaging and illumination optics, during more than three decades. The Michael Kidger Memorial Scholarship Award went to Brian Wheelwright this year, a PhD student at the University of Arizona.

The award for "Best Student Paper" was presented to Tzu-Yu Wu of the University of Arizona, with co-authors Arthur Gmitro and Andrew Rouse. Aaron Bauer from the University of Rochester, Stacey Suoka and Tamer Elazhary, both from the University of Arizona, all received the Robert S. Hilbert Memorial Student Travel Grants, helping them to fund their travel. Thanks to the sponsors of all these awards, and to the volunteers who served on the award committees. Their generous efforts show the dedication of the optical design community members to their field.

We have been honored to serve as chairs for IODC 2014. It is the joint effort of many people that makes IODC a unique event, time and again, capturing the state of our fascinating field every four years. Special thanks go to all companies and institutions that have the vision and the generosity to let their employees help to make conferences like IODC happen. We thank IODC's corporate sponsors, namely American Elements, Edmund Optics, Optimax, Rochester Precision Optics, and Synopsys, for their generous financial support. Thanks also go to all of our exhibitors and authors. We thank OSA and SPIE for supporting IODC, time and again. Thank you, Groot Gregory, for managing the IODC web site, www.iodc.info. Special appreciation is extended to OSA, and SPIE, who worked hard and gave their best to make IODC 2014 the positively memorable event that it was, and to create this proceedings volume.

Finally, we thank everyone for taking the time and effort to travel to Hawaii, to share your insights and your expertise, keeping the optical design community thriving and alive. We look forward to seeing you at future International Optical Design Conferences. For further information, please see the IODC website at www.iodc.info, which is regularly updated with new information about the next IODC.

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