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Nonimaging Optics: Efficient Design for Illumination and Solar Concentration XII

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Editors

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Introduction

Welcome to Nonimaging Optics: Efficient Design for Illumination and Solar Concentration XII.

While the first SPIE Nonimaging Optics conference dates back to 1991 (its 25th anniversary is approaching), I am both gratified and astonished at the novelty and creativity on display at every conference. This year's is no exception. Here is my incomplete list of nascent directions: the connections between nonimaging optics and radiative transfer are being revealed by connecting flow-lines to Hottel strings. Aplanatism, that common meeting ground between imaging and nonimaging methods, is being systematically developed. Freeform optics is so advanced that diffraction effects are being evaluated. Edge-ray and SMS methods, which are the staples of nonimaging optical design, are being further developed with some beautiful examples in both concentrating and illumination systems. Recent work reported on energy systems shows that nonimaging optics is making significant inroads. The advantages over classical imaging designs are being recognized by mainstream agencies, such as ARPA-E (Advanced Research Projects Agency-Energy).

Finally, it is a pleasure to recognize this year's significant participation of Australian scientists and engineers, specifically a collaboration called MUSIC (Micro Urban Solar Integrated Concentrators) comprised of RMIT University, the Australian National University, the University of New South Wales, and Rheem Australia Pty, Ltd. from Australia, as well as Arizona State University, the University of Tulsa, and the University of California, Merced from the United States.

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