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# ***Cryogenic Optical Systems and Instruments XIII***

**James B. Heaney  
E. Todd Kvamme**  
*Editors*

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# Introduction

This volume contains the Proceedings of our 14th Cryogenic Optical Systems and Instrumentation Conference that was held in San Diego, 21-25 August 2011. Previous books in this series include SPIE volumes 509 (1984), 619 (1986), 973 (1988), 1340 (1990), 1765 (1992), 2227 (1994), 2814 (1996), 3435 (1998), 4131 (2000), 4822 (2002), 5172 (2003), 5904 (2005), 6692 (2007), and 7439 (2009). Taken together with this most recent volume (8150), these yellow-covered Proceedings are a veritable library documenting more than a quarter century of technological advances related to the design, development, testing, and performance of optical components and instruments and the mechanisms and techniques used to cool and maintain them at cryogenic temperatures. The international community is well represented in their contents.

From the beginning, the needs of the aerospace community have had a formative influence on the evolution of this technology. Space satellite missions such as UARS, COBE, SIRTf (Spitzer), Cassini, WMAP, the evolving JWST and many others have contained instrumentation that was required to operate in some cases at temperatures near absolute zero. Their design, testing and performance evaluation challenged their cryogenic engineering and forced an advancement of the state-of-the-art. In our most recent conferences dating back to 2005, NASA's JWST Mission, with its joint NASA/ESA instrumentation suite, has contributed significantly to the contents of volumes 5904, 6692, 7439 and this current volume. A statement of the challenges confronted and the clever engineering remedies applied can be found in the papers contained in their Proceedings. In our age when digital publishing and record archiving have forced institutions of all types to re-evaluate their methods of capturing institutional knowledge, we are privileged with these Proceedings to be part of the SPIE's digital library that can make the fruit of our labor permanently and readily available to all.

**James B. Heaney  
E. Todd Kvamme**

