Guest Editorial

Optical engineering activity in the Huntsville area

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Optical activities in the Huntsville area have been driven primarily by government and industrial requirements. These requirements were formulated largely by the Army R&D work at Redstone Arsenal. They were expanded with the establishment of NASA's Marshall Space Flight Center in the early 1960s. Local optical activity expanded rapidly, in step with the space program. By 1969, the optical community in Huntsville formed a significant part of the available technical resources. This fact was formalized on October 20, 1969, when the Optical Society of America voted to recognize the Huntsville section of OSA. The first section president was Charles L. Wyman. The organization was large and active from the beginning. Within a few months of recognition, there were 175 individual members, many working in advanced areas of optical research and development, and nine corporate members. Within six months of recognition, the section was holding an all-day symposium. Recently this organization joined with SPIE to form the Electro-Optical Section and Working Group in Huntsville.

Optics in Huntsville has continued to grow, and it has become appropriate for *Optical Engineering* to feature papers devoted to optical activites in Huntsville and vicinity. It is typical of the widespread optical activities in the Huntsville area that the papers in this issue are drawn not only from government laboratories but from local industrial and academic research facilities as well. These papers cover a large array of material, from space hardware optics to optical modeling and simulation.

Several papers in this special issue are devoted to holography and interferometry. There are three papers on particle sizing, two using holography (Witherow, Belz) and one using interferometry (Roberds). In other papers, we see holographic optical correlation used to measure surface displacement (Owen and Liu —a preprint of this paper won an IEEE Section Prize). We also have a description of a holographic optical schlieren system, useful for fluid flow analysis (Kurtz and Perry). This group of papers alone illustrates the wide range of optical activities being pursued in the Huntsville area.

Several papers are devoted to space hardware optics. We have descriptions of the Space Telescope (Jones), of optical techniques for Spacelab experiments (Fowlis), Solar Maximum Mission hardware (Calvert et al), and of a low-light-level TV system (Clifton et al).

In the area of defense applications, there are papers on automated testing of electro-optical guidance systems (Schneider), noncontact circuit probing (Poulsen), and optical target simulation (Kulas and Crosswhite). These papers reflect some of the optical systems being supported and developed by the US Army and the US Air Force.

This issue also contains a satisfying array of general optical techniques papers, such as those on signal processing in scanning sensors (Wilcox), nonlinear modeling (Tippets and Wilcox), spectral imaging (McKinley), sensor simulation (Lewis and Horgen), and grazing incidence telescope with conical surface (Korsch). These techniques are useful in a variety of applications.

Optics in the Huntsville area has a broad base in government, industrial, and academic laboratories. This is represented in the range of author affiliation and subject matter which appears in this special issue. These activities are predominately applied, but they are sophisticated enough to be interesting to anyone using optics. It is hoped that this issue will be a useful reference.

The editors express their appreciation to the authors who contributed to this special issue. We also thank Peter Poulsen for his help. Very special recognition is given to Barry Johnson, Science Applications, Inc., La Jolla, California, for his efforts as chairman of the review committee for this issue. We hope that this issue will help further communication between optical researchers in our area and in other centers of optics.