WILLIAM J. TROPF

GUEST EDITOR'S INTRODUCTION

This issue of the *Johns Hopkins APL Technical Digest* continues the Optics at APL theme begun in the last issue. The introductory article in the last issue was an overview of the optical work of the Laboratory.[1] It should also be noted that there were two additional articles with optical subjects in the Advanced Technology at APL theme issue (July–September) of the *Digest*.[2,3] Also, the 1987 Publication Awards for Outstanding Papers in the *Digest* included an award[4] and an honorable mention[5] for papers on optics (see the article on Writing Awards in this issue).

Bryden et al. begin the optics theme with a discussion of APL's development of wide-band-gap nitride semiconductors for use as ultraviolet and visible emitters, detectors, and nonlinear optical devices. APL research concentrates on material development and characterization.

Boone et al. discuss the application of acousto-optical devices to radar signal processing. Optical processing offers advantages in size, speed, and power consumption compared with conventional digital processing for applications such as synthetic aperture radar image formation. Peacock and Long describe new technologies for advanced telescopes. New techniques offer the promise of telescopes with increased light gathering and better optical resolution for the next generation of ground-based observatories.

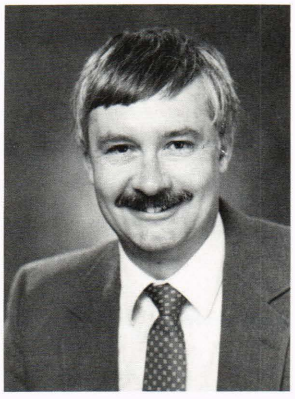
Ondercin characterizes instruments and measurements to determine the spatial variability of optical properties and bioluminescence in the upper ocean. Measurements were made in spring and summer, and characteristic scales and correlations were developed for the various optical parameters.

Visible and ultraviolet background measurements made during a recent space experiment are recounted by Carbary et al. Imaging and spectrographic instruments were used to determine the optical characteristics of the Moon, stars, and Earth's limb.

REFERENCES

1. W. J. Tropf, "Optics at the Applied Physics Laboratory," *Johns Hopkins APL Tech. Dig.* **9**, 315–318 (1988).
2. R. S. Potember, R. C. Hoffman, K. A. Stetyick, R. A. Murphy, and K. R. Speck, "Molecular Materials for Nonlinear Optics," *Johns Hopkins APL Tech. Dig.* **9**, 189–199 (1988).
3. B. G. Boone and R. A. Steinberg, "Signal Processing for Missile Guidance: Prospects for the Future," *Johns Hopkins APL Tech. Dig.* **9**, 269–275 (1988).
4. W. J. Tropf, M. E. Thomas, T. J. Harris, and S. A. Lutz, "Performance of Optical Sensors in Hypersonic Flight," *Johns Hopkins APL Tech. Dig.* **8**, 370–385 (1987).
5. F. W. Schenkel and B. S. Ogorzalek, "Auroral Images from Space: Imagery, Spectroscopy, and Photometry," *Johns Hopkins APL Tech. Dig.* **8**, 308–317 (1987).

THE AUTHOR



WILLIAM J. TROPF was born in Chicago in 1947. He received a B.S. degree from the College of William and Mary (1968) and a Ph.D. degree from the University of Virginia (1973), both in physics. He is now the supervisor of the Electro-Optical Systems Group in APL's Fleet Systems Department. Dr. Tropf has been engaged in the development and testing of advanced missile guidance systems since joining APL in 1977. His activities have encompassed both radar and infrared sensors, including atmospheric, target, and background modeling; signal processing for clutter suppression; and material properties.