

Electronic and electro-optical packaging is key to the effective use of electronics and optics in modern system applications. This issue of the *Technical Digest* examines APL's current and future advances in packaging, which build on a more than 65-year history of developing innovative packaging solutions to challenging problems in space, under water, on sea and land, and in the air. Package structures range from the largest satellites and instruments to the smallest components (e.g., carbon nanotubes). The cover illustrates electronic circuit boards of various types fabricated at APL. The central image is our latest bendable packaging technology, which consists of thinned die on a flexible substrate with an overall thickness slightly larger than the diameter of a human hair.

EDITORIAL BOARD

David M. Silver, *Chair and Editor-in-Chief*
Linda L. Maier-Tyler, *Assistant Editor-in-Chief*
James P. Christ, *Member-at-Large*
Alvin R. Eaton, *Member-at-Large*
Brian J. Anderson
Miquel D. Antoine
Angela L. Barrios
A. Roger Hammons Jr.
David O. Harper
Patrick J. Hudson
Peter P. Pandolfini
John C. Sommerer
James C. Spall
Dale W. Wilson

Ex Officio

Angela C. Hughes
Angelika Peck

STAFF

Angela C. Hughes, *Managing Editor*
Donald J. Vislay, *Art Director*
Eleanor Edgeworth, *Design Associate*
Kenneth R. Moscati, *Senior Illustrator*
Editorial Support: Murrie W. Burgan, Anne E. King,
and Peggy M. Moore
Illustration Support: Jacob Elbaz and Daryl L. George
Web Publisher: Donald J. Vislay
Photographers: Bill Rogers and Edward Whitman
Clearance Coordinator: Bonnie Cabbage-Lain
Production Assistant: Laura M. Mercer

The *Johns Hopkins APL Technical Digest* (ISSN 0270-5214) is published quarterly under the auspices of The Johns Hopkins University Applied Physics Laboratory (JHU/APL), 11100 Johns Hopkins Road, Laurel, MD 20723-6099. The objective of the publication is to provide a summary of unclassified individual programs under way at JHU/APL. Subscriptions are free of charge but are provided only to qualified recipients (government employees and contractors, libraries, university faculty members, and R&D laboratories). Requests for individual copies, subscriptions, or permission to reprint the text and/or figures should be submitted to the Office of the Editor-in-Chief at the above address. Phone (240) 228-5625. E-mail TechnicalDigest@jhuapl.edu.

The following abstracting services currently cover the *Johns Hopkins APL Technical Digest*: Astronomy and Astrophysics Abstracts; Chemical Abstracts; Current Contents; Science Citation Index; Deep Sea Research, Part B, Oceanographic Literature Review; Electrical/Electronic Abstracts; Engineering Index; International Aerospace Abstracts; Meteorological and Geostrophical Abstracts; Oceanic Abstracts; Physics Abstracts; and the following CSA abstracts: Aquatic Sciences & Fisheries, Part 2, Oceanic; Computer & Information Sciences; Electronics & Communications; and ISMEC.

Postmaster: Send address changes to the *Johns Hopkins APL Technical Digest*, Rm. 1-W131, 11100 Johns Hopkins Road, Laurel, MD 20723-6099. Periodical postage paid at Laurel, MD.

© 2008 by The Johns Hopkins University Applied Physics Laboratory.

The *Johns Hopkins APL Technical Digest* can be accessed electronically at www.jhuapl.edu/techdigest.
The electronic version may include multimedia capabilities for enhanced visualization of some concepts.