

Book Review

Experimental Characterization of Advanced Composite Materials,

L. A. Carlsson and R. B. Pipes, Prentice-Hall, Inc., Englewood Cliffs, NJ, 1986, 197 pp. \$39.95.

This brief book fills a niche in the composites field in that it is believed to be the first entire book written in English on the subject of experimental characterization of composites, with the exception of a translation of a Russian book (Yu. M. Tarnopol'skii and T. Kincis, *Static Test Models for Composites*, Engl. translation of 3rd. Russian edition, Van Nostrand Reinhold, New York, 1985). The authors are affiliated with the well-known Center for Composite Materials at the University of Delaware. The book is very concise and readable, and it is written at the level of advanced undergraduate/beginning graduate students.

After a very brief introduction, there is a chapter on the underlying theories of anisotropic elasticity, lamination theory, and fracture mechanics. This is followed by a chapter on laminate processing, including both thermosets and thermoplastics. There is a chapter on determination of fiber volume fraction. Finally, there are chapters on tensile and shear, compression, flexural, thermoelastic, and off-axis behavior of single layers, and chapters on tensile, thermoelastic, notched, and interlaminar fracture behavior of laminates.

Each chapter is relatively short, but is well illustrated, and contains a few key references. The quality of the

drawings and photographs is excellent, as is the printing quality. The monograph appears to be relatively free of printer's errors.

It is well to point out that this monograph is aimed at the design, testing, and data reduction of test specimens to obtain material property data for composites. It is not intended to cover the experimental strain measurement aspects. For that aspect, the reader is referred to J. M. Whitney, I. M. Daniel, and R. B. Pipes' book, *Experimental Mechanics of Fiber Reinforced Composite Materials* (rev. ed., Society for Experimental Mechanics Monograph No. 4, Prentice-Hall, Englewood Cliffs, NJ, 1984).

This monograph is highly recommended to novices just entering the experimental side of the composites field. It may also be useful to composite analysts who want to broaden their horizons and to experienced composites experimentalists who want to learn more about some of the newer fracture test specimens, such as the Arcan, cracked lap shear, and edge delamination test specimens.

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Notice to Subscribers

We apologize that this issue was mailed to you late. As you may know, AIAA recently relocated its headquarters staff from New York, N.Y. to Washington, D.C., and this has caused some unavoidable disruption of staff operations. We will be able to make up some of the lost time each month and should be back to our normal schedule, with larger issues, in just a few months. In the meanwhile, we appreciate your patience.