

Fundamental Aspects of Fiber Reinforced Plastic Composites, R. T. SCHWARTZ and H. S. SCHWARTZ, Interscience, New York, 1968, 284 pp.

This book is based on a series of oral presentations given at a conference in May 1966 on the "Fundamental Aspects of Fiber Reinforced Plastic Composites." Section I, entitled "Micromechanics," contains nine chapters, and section II, entitled "Fiber-Matrix Interface," contains seven chapters. The conference was sponsored by the Non-metallic Materials Division of the United States Air Force Materials Laboratory.

Unfortunately, the series still read like oral presentations. For the most part, the editors have failed to provide continuity between chapters and sections. For example, the micromechanics section is not clearly tied to the fiber-matrix section. Ties of this nature would be most meaningful in a fundamental book on fiber composite systems.

The book tends to be too advanced for the beginner in the field, yet it lacks the necessary detail for the specialist. While a book such as this might serve as a cross reference for those working in the field of fiber-matrix interfaces who seek information about micromechanics, the paucity of references and detail in some chapters limits its usefulness for this purpose.

In fairness to all concerned, a chapter-by-chapter evaluation should be made. On the basis of this type of an evaluation, it is apparent that the quality of the presentation varies from chapter to chapter. In the micromechanics section, there seems to be an overemphasis on the point-matching technique and no mention at all of finite element procedures now being used. The chapter on "Crack Propagation" might better be entitled "Cyclic Mechanical Fatigue." The chapter on stability, while very interesting, is unfortunately not supported with any experimental verifications. One of the more interesting chapters in the micromechanics section is on the "Influence of Fracture Toughness and Flaws or Interlaminar Shear Strength." The fiber-matrix section is too restricted to Fibreglas-polymer interfaces. While the techniques can presumably be used with other fiber-resin systems, it is not evident from the contents of the section.

Although the editors speak about the deficiencies of glass fabric-reinforced plastic and about the world of new fibers, too little space is devoted to these new fibers. While it may serve as a reference on certain aspects of progress in this area, the book falls short of its intended purpose of presenting the fundamentals of fiber-reinforced plastic composites. A more meaningful title would be *Some Research in Fibreglas-Reinforced Plastics, Circa 1966*.

In summary, the fundamental question involved in reviewing this work is whether a "research" conference of this type should be immortalized by bringing out a hard-cover edition of the proceedings two years after the conference.

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