Preface

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Preface

Abstract
This report contains the edited transcripts of the Review of Progress in Quantitative NDE held at the Scripps Institution of Oceanography, July 17-21, 1978. The Review was sponsored by the Advanced Research Projects Agency and the Air Force Materials Laboratory as a part of the Interdisciplinary Program for Quantitative Flaw Definition, Contract No. F33615-74-C-5180. Arrangements for the Review were made by the Science Center, Rockwell International, host organization for the Interdisciplinary Program, and the Scripps Institution of Oceanography, Dr. William A. Nierenberg, Director.

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The format selected for this review was the same as that adopted for the previous meeting at Cornell University. This format included a number of poster sessions in addition to the more traditional technical sessions. It has been found that the poster sessions provide a good way to accommodate the increased activity in this field while maintaining a forum that is highly conducive to technical interchange. As a further means of stimulating this exchange, a number of papers were included which are directly related to the principal technical interests of ARPA/AFML program even though they were not directly sponsored by ARPA/AFML.

The program emphasized several areas of progress in quantitative NDE. In addition to the work in quantitative ultrasonics, which has been a main program activity, new work in quantitative eddy current research and the methodology for the generation of rational accept/reject criteria were reported. In all these areas, strong emphasis is placed upon the physical interpretation of the quantitative measurements and their evaluation in terms of appropriate failure models. A session was also devoted to the presentation of work being pursued in reducing research results to practice, some of which is now beginning to flow from earlier work in the ARPA/AFML program as well as from other sources. This technology transition, as well as the research lead that is being developed, are both considered to be important products of this program.

Dr. James S. Kane, Associate Director for Basic Energy Sciences, Department of Energy, gave an excellent overview on the importance of NDE in energy systems. In his presentation, which is included in these Proceedings, he identified several areas of NDE activity which are of significance to the DoE in establishing safe and reliable energy systems at minimum cost. It is felt that this cross-stimulation with the ARPA/AFML work is highly beneficial for all, for there are many areas of commonality in which a problem solution generated in one program may benefit other programs of national interest. A series of short overviews of ongoing NDE research activities was given by a number of guests from overseas. These overviews also provided a beneficial cross-stimulation.

The organizers of the Review wish to acknowledge the financial support and encouragement provided by the Advanced Research Projects Agency and the Air Force Materials Laboratory and the technical participation of members of the Materials Research Council. Special thanks are due to Dr. Kane for his overview. The organizers also wish to thank speakers, session chairmen, authors of poster presentations, and participants who collaborated to provide a stimulating meeting. They wish to acknowledge with thanks the assistance of Mrs. Diane Harris who managed the organizational matters of the meeting, Mrs. Nadine Brinkman for her assistance at the meeting, and Mrs. Carmen Byrne and Mrs. Sarah Bergmann for the preparation of the Proceedings. They are also indebted to the management of the Scripps Institution of Oceanography, particularly Dr. William Nierenberg and Mr. Nelson Fuller, and to Mrs. Shirlee Long, UCSD, for their cooperative support in the conduct of the meeting.

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