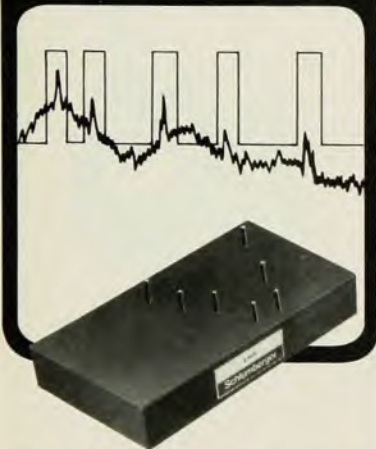


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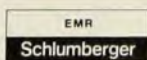
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defined range (about 100 to 150°C), the cold liquid will superheat and then "explode"; that is, it will have been superheated so much that the vaporization will proceed at explosive velocities and cause typical explosion damage even though no chemical reaction occurred. V. P. Skripov, the leading experimentalist in the USSR in this field, has now written this most timely book. It covers all the Russian work, including some only available in theses and untranslated papers, and much of the work in other countries (up to about 1970). A listing of the chapter headings is probably the best way to describe the topics covered. They are: "The Thermodynamics of the Initial Stage of the Liquid-Vapor Phase Transition," "Experimental Study of the Maximum Liquid Superheat," "New Methods for Studying Nucleation Kinetics," "Experimental Confirmation of the Homogeneous Nucleation Theory," "Explosive Boiling of Liquids Under Pulse Heating," "Initiated Nucleation," "Specific Volumes and Equations of State of a Metastable Liquid," "The Thermodynamics of the Spinodal" and "Density Fluctuations in Metastable and Near Critical States."

There is as yet no other book that discusses this subject. Even though it is written in Skripov's not-too-clear style, and unfortunately suffers somewhat from a translation that does not always use the correct (English) terminology, to anyone interested in what happens to strongly superheated liquids I do not hesitate to recommend this book. Certainly a copy belongs in every library.

JOSEPH L. KATZ

Clarkson College of Technology
Potsdam, New York

Techniques in Nuclear Structure Physics

J. B. A. England

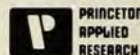
697 pp. Halsted, New York, 1974. \$39.90

Based on his years of experience and teaching at the University of Birmingham, J. B. A. England has put together two volumes that constitute an amazingly thorough and complete encyclopedia of useful and important information concerning all aspects of experimental nuclear physics, from accelerators to magnetic spectrometers to correlation techniques, and much more. This is *not* simply a compilation of handy graphs and equations but rather a well presented and well documented discussion of each of these areas, their development and their present (1972) state. For instance, chapter 5 on "Particle Identification Techniques" has 85 pages



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and 247 references discussing everything from time-of-flight techniques for neutrons and charged particles to the problems of uniformity, channeling and secondary nuclear reactions in passing detectors.

This book is ideally suited for students just entering into nuclear physics and for anyone already in the field who has any interest in learning about experimental techniques other than those in his own familiar niche. It should be in every laboratory's library and should be required reading for all experimental nuclear-physics graduate students.

PETER PARKER
Yale University
New Haven, Connecticut

Developments in the Theory of Turbulence

D. C. Leslie

368 pp. Oxford U. P., New York, 1973.
\$38.50

Turbulence seems to be the ubiquitous block to further progress in solving fluid-flow problems. Even the simplest problems involving homogeneous, isotropic turbulence have, until recently, defied solution. But now limited successes have been achieved in the work of Robert Kraichnan and his followers. Although Kraichnan's goal of developing a completely deductive theory of turbulence has not yet been reached, there have come out of the search a number of partly phenomenological stochastic models of turbulence that predict observed and numerically simulated turbulence statistics to within about 20%.

In this book, dedicated to Kraichnan, David Leslie has provided a coherent description of these recent developments. Himself an important contributor to the field, he leads the reader skillfully through the complicated kinematic manipulations required by the subject to the essential dynamical difficulties at the core. And along the way he provides cautionary comment to keep the reader from confusing complexity with truth.

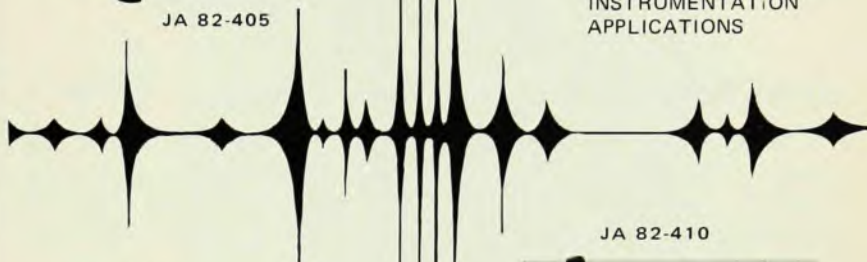
Although the author attempts in the final chapters to relate these theoretical developments to the solution of real flow problems, the book will probably be of more value to those interested in methods of approximation for solutions of the Liouville equation for statistical hydrodynamics than to those wishing to compute turbulent heat transfer. Here, for example, the reader will find lucid discussions of the breakdown of the quasi-normal approximation, the construction of the Eulerian Direct Interaction approximation, the need for La-

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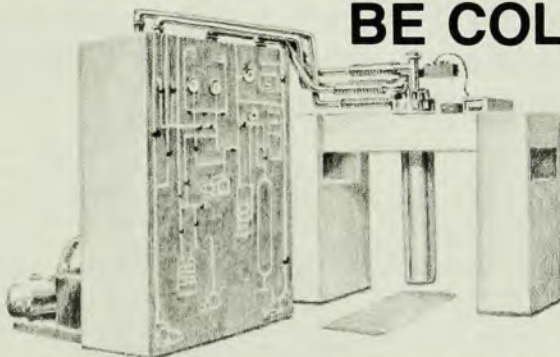
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