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VACUUM PHYSICS AND TECHNOLOGY

Volume 14

Vacuum Physics and Technology

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FOREWORD

In this publication, "Methods of Experimental Physics," three volumes are not directed to specific fields of research: Classical Methods (Volume 1), Vacuum Physics and Technology (the present volume), and Quantum Electronics (the following Volume 15). Each of these has broad reference value, but the present volume is of importance to the widest range of research interests. Vacuums are required in nearly every physics laboratory and in many chemistry and engineering laboratories as well.

The general approach taken by the Editors should make this volume one of extreme value, and one that can be used in conjunction with almost every other volume of Methods.

To all involved with this presentation go our deepest thanks.

L. MARTON
C. MARTON

PREFACE

When we were asked by the Editor of "Methods of Experimental Physics," Dr. L. Marton, to compose one volume on the subject of vacuum physics and technology, we immediately thought of the influence on our own combined 60 years of experimental research of such path-breaking authors as John Strong in "Procedures of Experimental Physics" and Saul Dushman in "Scientific Foundations of Vacuum Technique."

Dushman mentions in his preface of 1949 that " . . . vacuum technique has emerged from the purely scientific environment of the research laboratory and has entered the engineering stage on a scale that could not have been conceived even as recently as two decades ago." Similarly, the decades since 1949 have seen an even more explosive expansion into industrial applications with an extremely strong market for a wide range of commercially produced vacuum equipment. This equipment, in its turn, has become available to the experimental physicist in his research. Unfortunately, the cost of some of these items in an era of both inflation and retrenchment in research funds forces many to either build vacuum devices themselves or at least select with great care from the many commercially available.

With this in mind, we contacted the contributors to this volume with the hope that their respective specialized knowledge would communicate to those less sophisticated in vacuum physics the basic scientific ideas and today's generally accepted methods of producing, maintaining, and measuring various degrees of vacua, as required for their specific efforts.

Obviously, the different contributors to this volume make impossible the uniformity of style and of viewpoint which single authors bring to their books. On the other hand, we hope that the diversity of outlook and of opinion of our authors will be fresh and stimulating to the reader and will provide him with a variety of useful opinions that can be applied to his unique experimental requirements. It is the intent of this volume to provide the individual experimentalist with, we hope, all the up-to-date information in this vast field, and we thank our authors for their efforts in presenting their particular views of and extensive experience in vacuum technology.

G. L. WEISSLER
R. W. CARLSON

CONTENTS

2. Measurement of Total Pressure in Vacuum Systems
by D. R. DENISON

3. Partial Pressure Measurement

by W. M. Brubaker

4. Production of High Vacua