Silicon Material Preparation and Economical Wafering Methods

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SILICON MATERIAL PREPARATION AND ECONOMICAL WAFERING METHODS

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Foreword

This book presents the proceedings of two workshops which consider the latest techniques in silicon material preparation and economical methods for wafering silicon ingots. The information detailed will be of interest to those in the fields of materials research and semiconductors, as well as those involved in photovoltaic technology.

The silicon material preparation workshop, Part I of the book, discusses the chemistry and chemical engineering relating to the preparation of semiconductor-grade polysilicon; it reviews the status of preparation technologies and identifies critical barriers to improved processes and experimental programs to address the technical problems. Six subsections specifically cover silicon production and purity; thermodynamics, kinetics, and mechanisms; particle formation and growth; deposition in fluidized-bed reactors; chemical vapor deposition; and alternative polysilicon processes.

The objectives of the workshop on economical wafering methods, covered in Part II, were to clarify and define the state of the art in silicon wafering, to explore innovative ideas on wafering, and to stimulate the productive exchange of technology. The various aspects of ingot wafering covered in the workshop sessions were fixed- and free-abrasive sawing; wire, ID, and multiblade sawing; materials; mechanisms; characterization; economics; and new technology.

The information in the book is from:

> *Proceedings of the Flat-Plate Solar Array Workshop on the Science of Silicon Material Preparation (August 23, 24, and 25, 1982, The Pointe, Phoenix, Arizona),* edited by Ralph Lutwack, Jet Propulsion Laboratory, California Institute of Technology for the U.S. Department of Energy, February 1983.

Proceedings of the Low-Cost Solar Array Wafering Workshop (8-10 June, 1981, The Pointe, Phoenix, Arizona), edited by Andrew Morrison, Jet Propulsion Laboratory, California Institute of Technology for the U.S. Department of Energy, February 1982.

The papers presented here are as they were submitted for the workshops, and the discussions which follow were transcribed and edited from tapes of the actual workshop sessions. Workshop participant lists are included with each Part to facilitate identification of discussion participants. The table of contents is organized in such a way as to serve as a subject index and provides easy access to the information contained in the book.

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NOTICE

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