

LECTURE NOTES ON PRINCIPLES OF PLASMA PROCESSING

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Plasma processing of semiconductors is an interdisciplinary field requiring knowledge of both plasma physics and chemical engineering. The two authors are experts in each of these fields, and their collaboration results in the merging of these fields with a common terminology. Basic plasma concepts are introduced painlessly to those who have studied undergraduate electromagnetics but who have had no previous exposure to plasmas. Unnecessary detailed derivations are omitted; yet, the reader is led to understand in some depth those concepts, such as the structure of sheaths, that are important in the design and operation of plasma processing reactors. Physicists not accustomed to low-temperature plasmas are introduced to chemical kinetics, surface science, and molecular spectroscopy. The material has been condensed to suit a nine-week graduate course, but it is sufficient to bring the reader up to date on current problems such as copper interconnects, low-k and high-k dielectrics, and oxide damage. Students will appreciate the web-style layout with ample illustrations opposite the text and ample room for notes. The included CD contains a copy of the book which can be indexed using a Search function, and which can be enlarged on a monitor for a closer look at the diagrams in color. Sample homework and exam problems can also be found on the CD.

This short book is also ideal for new workers in the semiconductor industry who want to be brought up to speed with minimum effort. There is no need to wade through a thick, heavy textbook or monograph. This book contains new research results and discusses new concepts and problems that did not exist at the time previous books were published. The authors achieve both breadth and depth while maintaining conciseness and comprehensibility.



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