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Nota di contenuto	CONTENTS ; About the authors ; Preface ; 1 The past and present ; 1.1 Milestones in photovoltaic technology ; 1.2 Evolution of the PV market ; 1.3 Overview of photo voltaic cell operation ; 1.4 Other junction types ; 1.5 Sources of further information 2 Device physics of silicon solar cells 2.1 Introduction ; 2.2 Semiconductor device equations ; 2.3 The p-n junction model of Shockley ; 2.4 Real diode characteristics ; 2.5 Numerical solar cell modelling ; 2.6 Concluding remarks ; 3 Principles of cell design ; 3.1 Introduction 3.2 Main cell types 3.3 Optical design of cells ; 3.4 Surface recombination losses and their reduction ; 3.5 Bulk recombination losses and their reduction ; 3.6 Design and fabrication of the metal contacts ; 3.7 Conclusions ; 4 Crystalline silicon solar cells

; 4.1 Overview
4.2 Silicon cell development 4.3 Substrate production ; 4.4 Cell processing ; 4.5 Cell costs ; 4.6 Opportunities for improvement ; 4.7 Silicon-supported thin films ; 4.8 Summary ; 5 Amorphous silicon solar cells ; 5.1 Introduction ; 5.2 Background 5.3 Amorphous silicon-based materials 5.4 Growth and microstructure ; 5.5 Solar cells ; 5.6 Solar cell structures ; 5.7 PV modules ; 5.8 Manufacturing costs ; 5.9 Long-term reliability ; 5.10 Environmental issues ; 5.11 Challenges for the future ; 6 Cadmium telluride solar cells 6.1 Introduction

Sommario/riassunto

Photovoltaic cells provide clean, reversible electrical power from the sun. Made from semiconductors, they are durable, silent in operation and free of polluting emissions. In this book, experts from all sectors of the PV community - materials scientists, physicists, production engineers, economists and environmentalists - give their critical appraisals of where the technology is now and what its prospects are. Sample Chapter(s)
Chapter 2.1: Introduction (306 KB)
Chapter 2.2: Semiconductor device equations (121 KB)
Chapter 2.3: The p-n junction model of Shockley (1,017 KB)<br