

Crystal Growth of Silicon for Solar Cells #2010 #9783642020445 #Springer Science & Business Media, 2010 #Kazuo Nakajima, Noritaka Usami #255 pages

Die-cast silicon sheets for solar cells prepared by shaped crystal technology. On the problem of determining the bulk lifetime of unpassivated silicon wafers. Spatial Variation of Oxygen and Carbon Precipitation in Polycrystalline Sheet Silicon. Control of the meniscus of molten silicon in any vertical ribbon growth method is critical to the successful growth of uniform thickness, flat, and low stress ribbon. Given that vertical silicon ribbon growth eliminates the need for any slicing, flatness of the as-grown ribbon is an important requirement. Crystalline silicon solar cells. MARTIN A. GREEN Photovoltaics Special Research Centre, University of New South Wales, Sydney, N.S.W. AUSTRALIA, 2052 m.green@unsw.edu.au. Most silicon cells have been fabricated using thin wafers cut from large cylindrical monocrystalline ingots prepared by the exacting Czochralski (CZ) crystal growth process and doped to about one part per million with boron during ingot growth. A smaller but significant number use what are referred to as "multicrystalline" wafers sliced from ingots prepared by a simpler casting (or, more generally, directional solidification) technique, which produces large-grained polycrystalline ingots. The fundamental knowledge on crystal growth mechanisms obtained through this book will contribute to future developments of novel crystal growth technologies for further improvement of conversion efficiency of Si-based solar cells. Discover the world's research. 17+ million members. Dec 2010. Crystal Growth of Silicon for Solar Cells. pp.135-157. A. Fave. Silicon crystals for high efficiency solar cells are produced mainly by the Czochralski (CZ) crystal growth method. Computer simulations of the CZ process established themselves as a basic tool for optimization of the growth process which allows to reduce production costs keeping high quality of the crystalline material. Author Elsevier Books Reference. Fundamentals Of Solar Cells: Photovoltaic Solar Energy Conversion. Author Alan Fahrenbruch. Nanostructured Materials for Solar Energy Conversion. Author Elsevier Books Reference. Silicon Processing for Photovoltaics II. Author Elsevier Books Reference. 50 Years Progress in Crystal Growth: A Reprint Collection. Chapter 1. Basic growth and crystallographic quality of Si crystals for solar cells. 1.1. Si single and multi-crystals. 1.2. Basic growth of Si crystals. Since then, solar cells have been widely used in different fields all over the world, e.g. in satellites and space stations, remote prairies, mountains and islands, to offer off-grid electricity. Crystal Growth of Silicon has been added to your Cart. Add to Cart. Buy Now. From the Back Cover. This volume presents a comprehensive survey of the science and technology of crystal growth of Si for solar cells with emphasis on fundamental science. Starting from feedstock, crystal growth of bulk crystals (single crystal and multicrystals) and thin film crystals are discussed. Numerous illustrations promote a comprehension of crystal-growth physics. The fundamental knowledge on crystal growth mechanisms obtained through this book will contribute to future developments of novel crystal growth technologies for further improvement of conversion efficiency of Si-based sola...