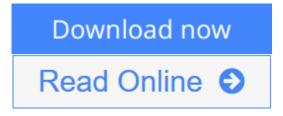


Electrochemistry of Silicon and Its Oxide

By Xiaoge Gregory Zhang



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It may be argued that silicon, carbon, hydrogen, oxygen, and iron are among the most important elements on our planet, because of their involvement in geological, biol- ical, and technological processes and phenomena. All of these elements have been studied exhaustively, and voluminous material is available on their properties. Included in this material are numerous accounts of their electrochemical properties, ranging from reviews to extensive monographs to encyclopedic discourses. This is certainly true for C, H, O, and Fe, but it is true to a much lesser extent for Si, except for the specific topic of semiconductor electrochemistry. Indeed, given the importance of the elect-chemical processing of silicon and the use of silicon in electrochemical devices (e. g., sensors and photoelectrochemical cells), the lack of a comprehensive account of the electrochemistry of silicon in aqueous solution at the fundamental level is surprising and somewhat troubling. It is troubling in the sense that the nonphotoelectrochemistry of silicon seems "to have fallen through the cracks," with the result that some of the electrochemical properties of this element are not as well known as might be warranted by its importance in a modern technological society. Dr. Zhang's book, Electrochemical Properties of Silicon and Its Oxide, will go a long way toward addressing this shortcoming. As with his earlier book on the elect- chemistry of zinc, the present book provides a comprehensive account of the elect- chemistry of silicon in aqueous solution.



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Review

`Dr. Zhang provides an encyclopedic compilation of the literature on the many electrochemical effects that impact the processing of silicon and its native oxide. This book will be an important reference for the silicon specialist and may have within its pages that key detail which will explain process anomalies to the MEMS practitioner.'

Steve Senturia, Weller Professor of Electrical Engineering, Massachusetts Institute of Technology'This book is a must for every laboratory where semiconductor electrochemsitry is actively pursued. It is a welcome and recommended addition to every library of an institution where electrochemistry is a suibject of active research.'

Journal of Solid State Electrochemistry, 7:5

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