Preface to the Fourth Edition

Since the appearance of our book, Fundamentals of Semiconductors: Physics and Materials Properties, one of the questions we are asked most frequently is this: “is there a solution manual to this book?” In preparing the questions at the end of each chapter we have already tried to guide the readers to derive the answers by themselves using a step-by-step approach. Clearly this strategy did not work for everyone. We recognize that many of the questions in this book are quite challenging and often require reading of research papers to solve them. In response to readers demand we have decided to provide solutions to some of the problems in this new edition. Since working through problems is an important and necessary part of the learning process in physics we will not give the solutions to all the problems. Instead, we hope to use the solutions to a number of selected problems in each chapter as an additional study help to the readers. We like to use these solutions to provide more in depth discussions to topics which may be too specialized for a typical course on semiconductor physics. By leaving enough unsolved problems and adding a few new ones there are still plenty of opportunities for both the instructors to choose problems for assignments and for students to test their understanding of the text. We like to point out that, even if the solution can be found in this manual, there is usually more than one way to solve a given problem. Conscientious students should always ask whether there is a better way to solve a problem than the one we have provided in this manual.

This new addition also allows us to update and expand some topics and references. Finally, we hope to have taken care of the few errors still remaining in the third edition. We like to use this opportunity to thank the readers who have identified them to us. Their support has been invaluable in our effort to improve this book.

A Russian translation of our book has appeared in 2003. It joins previous translations of the book into Japanese and Chinese, making this book available to a truly international readership. Last, but not least, the homepage of the book has been given a "face lift”. Readers are encouraged to visit the new website at: http://pauline.berkeley.edu/Book/Fundamentals.html to discover new information and materials which have been added.

Peter Y. Yu and M. Cardona
Berkeley, CA and Stuttgart, Germany

March 2010
Fundamentals of Semiconductors
Physics and Materials Properties
YU, P.; Cardona, M.
2010, XXII, 778 p., Hardcover
ISBN: 978-3-642-00709-5