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# Light Science

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# Light Science

Physics and the Visual Arts

Second Edition

 Springer

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## Preface

The title of this book, *Light Science*, can take on several meanings. First, it is intended to be an introduction to the science of light, especially intended for students in the visual arts and for readers with an interest in art. Second, it means that the book emphasizes the phenomena of light rather than the mathematical theories of light. Third, it suggests an approach that makes science accessible to a wide audience.

The close relationship between science and the arts has always been a special interest of both authors. Visual art depends on light to communicate with its intended audience, and an understanding of light and color by both the artist and the viewer will (hopefully) enhance this communication. We would like to hope that this is a book that Monet and Renoir would have enjoyed, just as we enjoy their exquisite paintings.

The material in this book was originally designed for an introductory course in physics for students having an interest in the visual arts. We have used it in both high school and university classes. It demands no previous training or experience in physics or mathematics beyond that of high school algebra. When used in its entirety, it is appropriate for a one-semester college course. Many chapters are “stand-alone” chapters and can be used as supplemental material for courses in physics, art, or psychology.

We are great believers in hands-on learning. In each chapter, we suggest simple experiments for the reader to do with common materials at home or that can be demonstrated in class. Laboratory experiments are in Appendix J.

Each chapter includes the following: summary, references, glossary, review questions, questions for thought and discussion, exercises, and experiments for home, laboratory, and classroom demonstration.

The authors wish to thank graphic artist Jennifer Geanakos for her indispensable contribution to *Light Science*. A thank you also goes out to Pam Aycock for her meticulous proofreading of the manuscript. Any mistakes that remain are our responsibility.

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