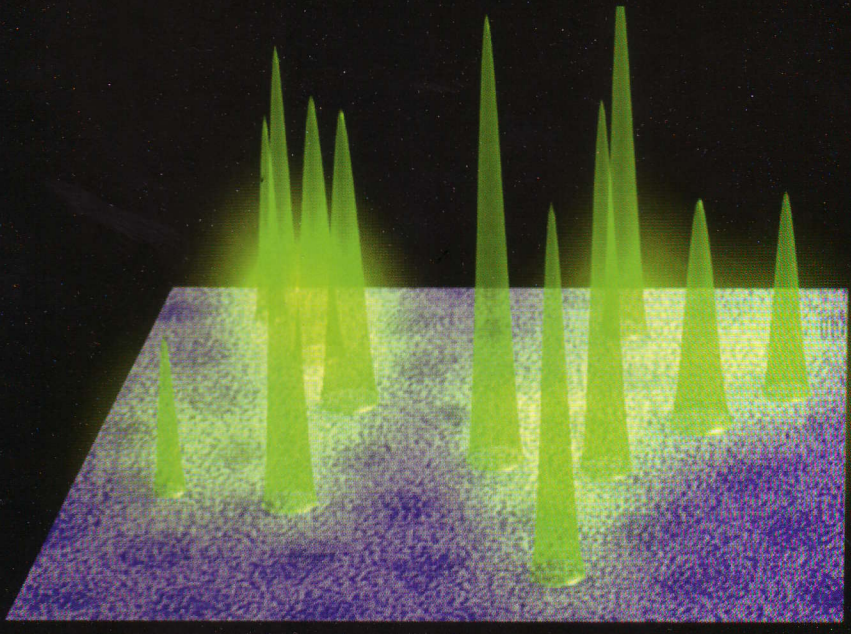
A New Quantitative Approach

INTRODUCTORY NANOSCIENCE

PHYSICAL AND CHEMICAL CONCEPTS



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Garland Science
Taylor & Francis Group
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KEY FEATURES

- Derivations of key equations, with an emphasis on "back-of-the-envelope" calculations
- End-of-chapter thought problems incorporating further reading
- Historical summary of the development of colloidal quantum dots
- Description of approaches by which nanostructures are characterized
- Summary of current applications of low dimensional materials

Designed for upper-level undergraduate and graduate students, *Introductory Nanoscience* asks key questions about the quantitative concepts that underlie this new field. How are the optical and electrical properties of nanomaterials dependent upon size, shape, and morphology? How do we construct nanometer-sized objects? Using solved examples throughout the chapters, this textbook shows to what extent we may predict the behavior and functionality of nanomaterials by understanding how their properties change with scale. Fundamental concepts are reinforced through end-of-chapter problems and further reading. Students will appreciate complete derivations of relevant equations, simplified assumptions for practical calculations, listed references, and a historical overview about the development of colloidal quantum dots.

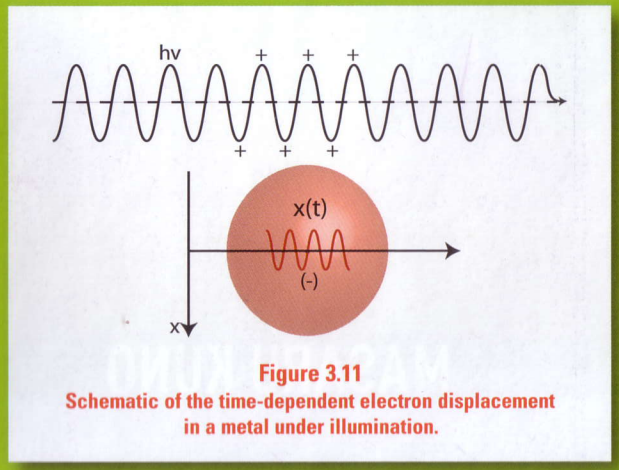

Figure 3.11
Schematic of the time-dependent electron displacement in a metal under illumination.

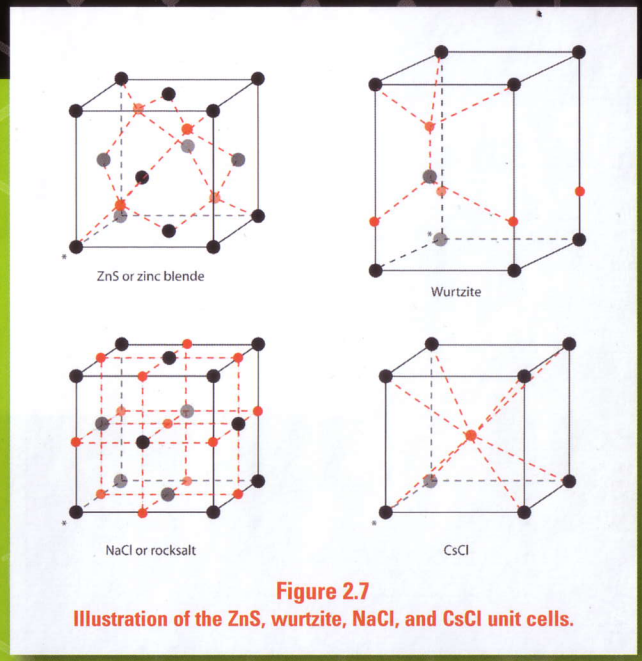

Figure 2.7
Illustration of the ZnS, wurtzite, NaCl, and CsCl unit cells.

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A sample chapter is available at www.garlandscience.com/nanoscience.
Artwork in JPEG and PowerPoint® formats available to adopting instructors.

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180 illustrations

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