

# SALEM PRESS

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## **Salem Press Announces the Second Volume in A Brand-New Series, *Principles of Physics***

Salem Press is pleased to add *Principles of Physics* to its collection, the second of four titles in a new *Principles of* series: Chemistry, Physics, Astronomy, and Computer Science. This new resource introduces students and researchers to the fundamentals of physics using easy-to-understand language, giving readers a solid start and deeper understanding and appreciation of this complex subject.

Edited by Donald R. Franceschetti, PhD from *The University of Memphis*, this reference work begins with a comprehensive introduction to the field. It starts with the ancient Greeks' quest to understand motion, both on earth and in the heavens, includes Einstein and the *annus mirabilis* and J. Robert Oppenheimer, the father of the atom bomb and a discussion of how vacuum tubes and digital processors have fundamentally changed the way we live, and ends with a discussion of the challenge and the promise of physics education in today's high schools.

This edition includes 142 entries ranging from Aberrations to X-rays. All entries are arranged in an A to Z order, making it easy to find the topic of interest. Each entry includes related fields of study to illustrate the connections between the various branches of physics, including acoustics, high energy physics, psychophysics, quantum electrodynamics, and nanotechnology; a brief, concrete summary of the topic and how the entry was organized; principal terms that are fundamental to the discussion and to understanding the concepts presented; illustrations that clarify difficult concepts via models, diagrams, and charts of such key topics as blackbody radiation, Bernoulli's principle, and Higgs boson; equations that demonstrate how to determine mechanical advantage, understand the ideal gas law, the fundamentals of quantum mechanics, and Einstein's famous mass-energy equation  $E=mc^2$ ; photographs of significant contributors to the study of physics; sample problems that further demonstrate the concept, law or constant presented; and biography lists that relates to the entry. Entries in *Principles of Physics* range from one to five pages in length. Topics discussed include:

- Absorption
- Amplitude
- Bohr atom
- Diode
- Doppler effect
- Entropy
- Gauss's law
- Joule
- Ideal gas law
- Light waves
- Prisms
- Ultrasound
- Radiation
- Symmetry
- Particle detectors
- Plus much, much more!

The book's back matter is another valuable resource which includes a **The Standard Model**, a discussion of the key discoveries and concepts that led to a growing understanding of subatomic particles and the electromagnetic, strong, and weak interaction; **Nobel Notes** that explain the significance of the prizes to the study of science and their interdisciplinary nature; **Nobel Prize Laureates** in the area of physics from the first awards in 1901, given to William Conrad Röntgen to the prize awarded in 2015 to Takaaki Kajita and Arthur B. McDonald "for the discovery of neutrino oscillations, which shows that neutrinos have mass"; **Pre-Nobel Notables**, recognizing some of the important figures in physics who did not receive a Nobel Prize; **Physics Constants**, showing their symbols, names, and values; **Physics Laws**; **Glossary**; **General bibliography**; and a **Subject index**.

The *Principle of* series offer students and researchers an easy-to-understand introduction to the major principles of Chemistry, Astronomy, Physics, and Computer Science. These new resources will be a helpful tool for students and researchers who are just beginning their studies of science and need a solid background of the key terms and elements in the field. A must have for all high school and undergraduate science programs.

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#### *Principles of Physics*

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