

Preface

This book is divided into two volumes. In Volume 1, we start with an introduction to the basic properties of luminescent materials (phosphors), before addressing the principle of energy transfer and pressure effect of phosphor. Moreover, we present the theoretical first-principles calculation of luminescent materials. After having established a basic understanding of phosphors, we then discuss a variety of phosphors of oxides, nitrides, (oxy)nitrides, fluorides, etc. In Volume 2, we shift the focus to the applications of phosphors in light-emitting diodes, field emission displays, agriculture, solar spectral convertors and persistent luminescent materials. We then demonstrate through the basic upconversion nanoparticles their applications in biomedical contexts. Lastly, we introduce readers to the basics and applications of quantum dots.

Taken together, the two volumes offer essential insights on the basics and applications of phosphor at the bulk and nanoscale.

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Dots and Their Applications

Volume 2

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