Zhang

Photon Upconversion Nanomaterials

This book introduces the latest advances made in both fundamental studies and potential applications of upconversion nanomaterials, particularly in the field of high-resolution *in vitro* bioanalysis and *in vivo* imaging. This book starts with the synthesis and characterization, and focuses on applications ranging from materials science to biology. Above all, it describes cutting-edge advances in upconversion nanophosphor (UCNP)-based applications in multiplexed encoding, guest delivery and release systems, photodynamic therapy (PDT), solar cells, photocatalysis and so on. The major barriers that currently prevent UCNPs from being used in mainstream applications are also presented in detail.

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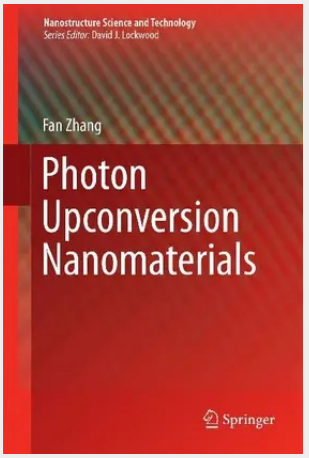

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