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See Fan Zhang *et al.*, pp. 1346–1378.
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Inside cover
See Xueyuan Chen *et al.*, pp. 1379–1415.
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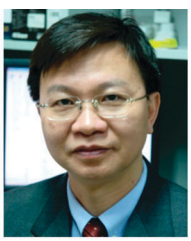
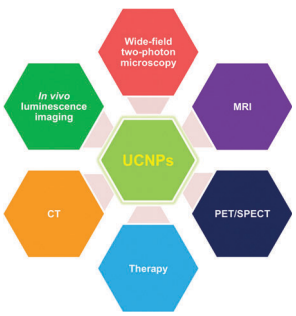
EDITORIAL


Xiaogang Liu


Chun-Hua Yan


John Capobianco

TUTORIAL REVIEWS



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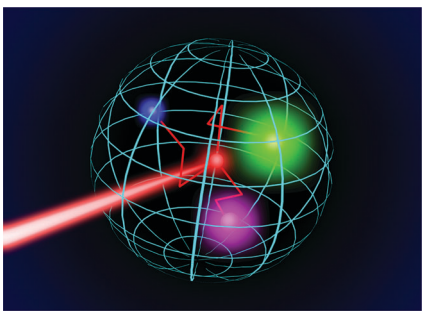

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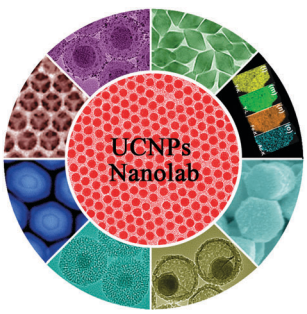

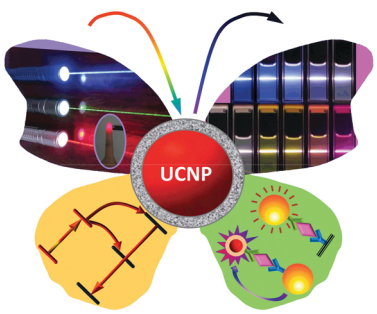

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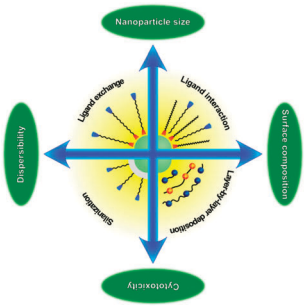

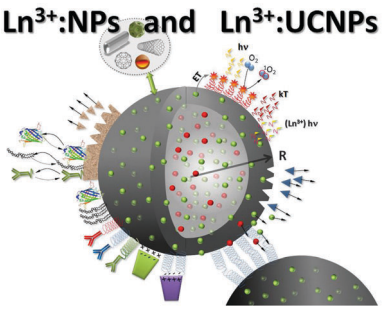

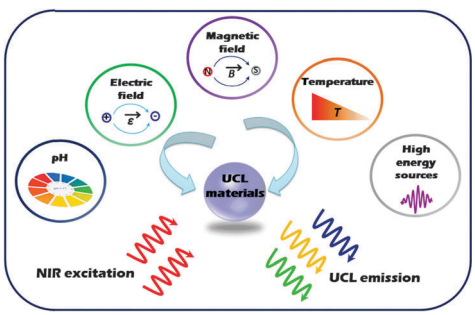

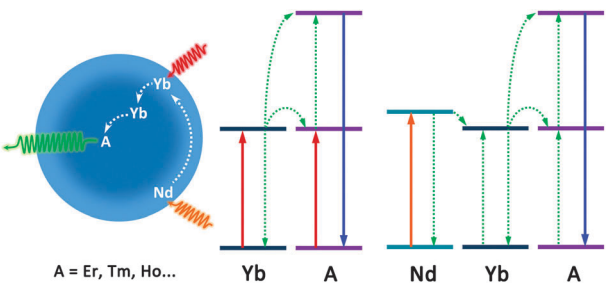

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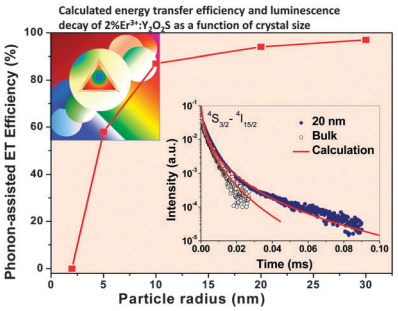
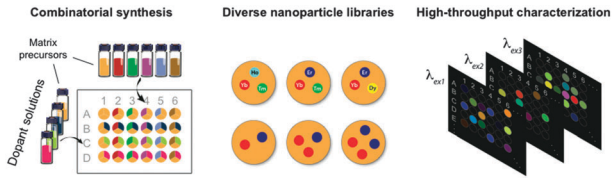


Advances in the theoretical understanding of photon upconversion in rare-earth activated nanophosphors

Guokui Liu

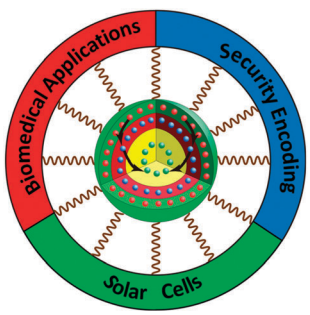
A comprehensive review of the theoretical background is provided for understanding photon upconversion with particular attention to assessing photoluminescence dynamics in rare-earth activated nanophosphors.



Combinatorial approaches for developing upconverting nanomaterials: high-throughput screening, modeling, and applications

Emory M. Chan

This review surveys the use of combinatorial and high-throughput techniques for the rapid discovery, optimization, and application of upconverting nanomaterials.



Light upconverting core–shell nanostructures: nanophotonic control for emerging applications

Guanying Chen,* Hans Ågren, Tymish Y. Ohulchanskyy and Paras N. Prasad*

Nanophotonic control of light upconversion in the hierarchical core–shell nanostructures, their biomedical, solar energy and security encoding applications were reviewed.