1. Record Nr. UNINA9910337933903321

Titolo	Principles and Applications of Aggregation-Induced Emission / / edited by Youhong Tang, Ben Zhong Tang
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
ISBN	3-319-99037-3
Edizione	[1st ed. 2019.]
Descrizione fisica	1 online resource (518 pages)
Disciplina	535.35
Soggetti	Optical materials Electronic materials Nanochemistry Biomedical engineering Optical and Electronic Materials Biomedical Engineering and Bioengineering
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Chapter 1. Perarylation as a strategy towards aggregation-induced emitters: Will they ever be stable? -- Chapter 2. Rational designs of AIE-active molecules and luminochromic materials based on group 13 element-containing element-blocks -- Chapter 3. Precious metal-free organic small molecule luminophores that exhibit room temperature phosphorescence -- Chapter 4. Polymers with aggregation-induced emission characteristics -- Chapter 5. High performance mechanochromic luminescent materials from AIEgens -- Chapter 6. Mechanoluminescence materials with the characteristic of aggregation induced emission (AIE) -- Chapter 7. Aggregation-induced emission on supramolecular coordination complexes platforms -- Chapter 8. Applications of AIE to molecular recognition: why is it superior to unimolecular recognition? -- Chapter 9. Tetraphenylethene derivatives - a promising class of AIE luminogens: Synthesis, properties and applications -- Chapter 10. AIE-type metal nanoclusters: Synthesis, luminescence, fundamentals and applications -- Chapter 11. Nanocrystals with crystallization-induced or -enhanced emission --

Chapter 12. Fluorescent aptasensor based on aggregation-induced emission probe and carbon nanomaterials -- Chapter 13. Application of aggregation-induced emission fluorogens for detection and quantification of toxic chemicals in small aquatic organism -- Chapter 14. Aggregation Induced Emission: new emerging fluorophores for environmental sensing -- Chapter 15. Aggregation-induced emission (AIE): A versatile tool for chemo/biosensing -- Chapter 16. Utilisation of tetraphenylethene-derived probes with aggregation-induced emission properties in fluorescence detection of biothiols -- Chapter 17. Applications of AIEgens in super-resolution imaging, fluorescence lifetime imaging and fluorescence anisotropy imaging -- Chapter 18. AIE luminogens for three-photon fluorescence bioimaging -- Chapter 19. Aggregation-induced emission luminogens for biomedical applications -- Chapter 20. Aggregation-induced emitters in light harvesting.

Sommario/riassunto

This book explores the aggregation-induced emission (AIE) effect, which has opened new avenues for the development of advanced luminogenic materials in the aggregate or solid state. By enabling light emission in the practically useful solid state, AIE has the potential to significantly expand the technological applications of luminescent materials. This book addresses principles, methods, and applications of AIEs, offering a new platform for the investigation of light-emitting processes from luminogen aggregates. Applications of AIE include biomedical diagnostics, sensor materials, and optoelectronic devices, among others, and are described in detail within the book. The development of a new generation of AIEgens, a deep understanding of the AIE mechanism(s), and the exploration of advanced technological applications will enable this exciting field to develop further. Headed by the pioneering researcher who started the field, Professor Ben Zhong Tang, this book combines both principles and applications and brings together global researchers in the field to report the progress, current challenges, and potential breakthroughs that may be accomplished in the near future. Provides an authoritative account of the fundamentals, properties, and potential of AIE by the pioneer of this active, highly-researched field; Highlights technological applications of AIE spanning biomedicine, sensor materials, and optoelectronics, among others; Presents a comprehensive view on challenges in the further development of AIE and derived technologies.