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Nota di contenuto	Introduction to photonic quantum dot nanomaterials and devices -- Theory of quantum dot light-matter dynamics -- Light meets matter I : microscopic carrier effects and fundamental light-matter interaction -- Light meets matter II : mesoscopic space-time dynamics -- Performance and characterisation : properties on large time and length scales -- Nonlinear pulse propagation in semiconductor quantum dot lasers -- High-speed dynamics -- Quantum dot random lasers -- Coherence properties of quantum dot micro-cavity lasers.
Sommario/riassunto	Quantum dot nano structures are interesting for applications in information technology and play a growing role in data storage, medical and biological applications. Understanding quantum nanomaterials is thus the key for the conception and optimization of novel structures. This monograph gives an overview of the theory and introduces the concepts of advanced computational modelling of quantum dot nanomaterials and devices ranging from phenomenological models up to fully quantum theoretical description.