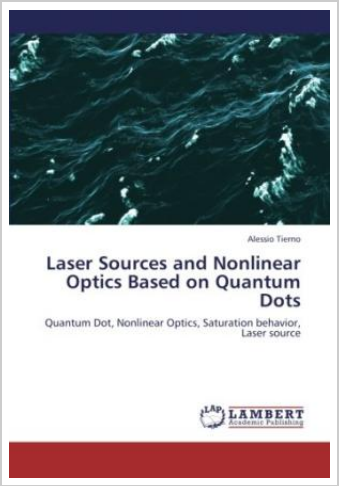

Laser Sources and Nonlinear Optics Based on Quantum Dots

By Tierno, Alessio

Condition: New. Publisher/Verlag: LAP Lambert Academic Publishing | Quantum Dot, Nonlinear Optics, Saturation behavior, Laser source | In this book, we have shown first results on how to improve the coherence of an as-grown broad-area laser diode based on quantum dots. The achieved bandwidth of 5-10 GHz at power levels of 10-140 mW is sufficient for many applications such as investigating the nonlinear optics of QD though at higher current the spatial coherence is not optimal. We calculate the nonlinear optical response of a sample of self-assembled QD to a cw driving field via numerical simulations. It is found that a saturation model based on inhomogeneous broadening fits the numerical results but that the saturation power depends on detuning in contrast to a strongly inhomogeneously broadened system. This is interpreted to be due to that fact that QD are in the Voigt-parameter regime between homogeneous and inhomogeneous broadening. Following the numerical simulations we report studies on the interaction strength between laser and self assembled quantum dots, as a function of power in the form of the absorption and gain coefficient. Our analysis is concentrated on continuous wave (cw) beam interacting with quantum dot structures. Several setups have been arranged and...

Reviews

This is the finest publication we have read through right up until now. Better then never, though i am quite late in start reading this one. Its been written in an remarkably easy way in fact it is only after i finished reading through this book by which basically altered me, affect the way i think.

-- ***Dr. Gabriella Hayes***

A fresh eBook with a brand new standpoint. It can be rally exciting throgh looking at period of time. I am delighted to inform you that this is the greatest book i have read through during my individual existence and may be he very best publication for ever.

-- ***Era Thompson***