

Abstract Submitted
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Shock wave dispersed nano beam epitaxy KSR KOTESWARA RAO, ATUL ABHALE, KPJ REDDY, Indian Institute of Science — In this work, we introduce a new technique called "shock wave dispersed nano beam epitaxy (SD-NBE)" to create nano-layers of quantum dots towards development of ultra-thin-film devices. Though the technique is not limited to QDs, any other material in solution form such as conducting or insulating polymers, solution dispersed CNTs, fluorescents, photoresist etc., can be deposited on variety of substrates irrespective of the nature of substrate (silicon, glass, metal, polymer film etc.). It is based on the nano-dispersion technique that exploits the phenomena, which produce focused weak shock waves and disperse nanomaterials. Here, the solution dispersed PbS/CdTe QDs have been deposited on Si, SiO₂/Si substrates and found to have suitable physical, electrical and optical properties to be useful in the development of thin-film devices. This novel technique is inexpensive, economically use quite a small amount of material and minimizes the wastage; hence, it can be well implemented in various applications of material physics and device technology at nanoscale.

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