Title:	Strain distributions in group IV and III-V semiconductor quantum dots
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Abstract:	A theoretical model was developed using Green's function with an anisotropic elastic tensor to study the strain distribution in and around three dimensional semiconductor pyramidal quantum dots formed from group IV and III-V material systems namely, Ge on Si, InAs on GaAs and InP on AlP. A larger positive strain in normal direction which tends to zero beyond 6*nm* was observed for all three types while the strains parallel to the substrate were negative. For all the three types of quantum dots hydrostatic strain and biaxial strain along x and z directions, were not linear but described a curve with a maximum positive value near the base of the quantum dot. The hydrostatic strain in x-direction is mostly confined within the quantum dot and practically goes to zero outside the edges of the quantum dot. For all the three types, the maximum hydrostatic and biaxial strains occur in x-direction around -1*nm* and around 2*nm* in z-direction. The negative strain in x-direction although realtively weak penetrate more deeper to the substrate than hydrostatic strain.The group IV substrate gave larger hydrostatic and biaxial strains than the group III-V semiconductor combinations and InAs /GaAs was the most stable. The results indicated that the movements of atoms due to the lattice mismatch were strong for group III-V.