

# **NANOPARTICLES UNDER THE INFLUENCE OF SURFACE/INTERFACE ELASTICITY**

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We investigate the effect of surface/interface elasticity in the presence of nanoparticles, embedded in a semi-infinite elastic medium. The work is motivated by the technological significance of self-organization of strained islands in multilayered systems. Islands, adatom-clusters, or quantum dots are modeled as inhomogeneities, with properties that differ from the ones of the surrounding material. Within the framework of continuum elasticity theory, the Papkovitch-Neuber displacement methodology coupled with Gurtin's surface elasticity yield an analytical solution. The elastic field is expressed in terms of four sets of spherical and cylindrical harmonics. Surface elasticity introduces an additional length scale and results suggest that local stresses are significantly affected by the size of the nanoparticles.