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Tesis: **"SECOND HARMONIC GENERATION AS AN OPTICAL PROBE OF BURIED INTERFACES"**

Resumen:

In this manuscript, we present a method for the determination of defects in the crystalline morphology of buried surfaces using SHG. This is done by calculating the second order nonlinear susceptibility using DFT, length gauge and the cut function for surface responses. We analyzed the change in the SHG response of GaAs 110 crystalline slabs due to systematically induced defects. We found that SHG can be used to obtain the position of periodical defects like the displacement of a atom in the periodic crystalline cell, also, SHG can be used to detect dislocation of sections in the slab and misfits between stacked slabs. Finally, we give a scheme for the experimental determination of this defects by using the values of nonlinear susceptibility measurements.