

NANOINDENTATION-INDUCED PHASE
TRANSFORMATIONS IN HgCdTe
EPITAXIAL HETEROSTRUCTURES

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S u m m a r y

Mercury-cadmium-telluride (MCT) epitaxial heterostructures grown by molecular beam epitaxy (MBE) and liquid phase epitaxy (LPE) were subjected to nanoindentation for revealing possible phase transitions in the vicinity of heteroboundaries. The nanoindentation load — displacement curves of the lattice mismatched MCT based heterostructures grown by MBE on GaAs substrates with ZnTe/CdTe buffer layers displayed the characteristic “elbow” behavior in the unloading part of the curves. In the lattice matched MCT heterostructures grown by LPE on the ZnCdTe substrate, the more pronounced bending of similar curves and the evident “pop-out” effect, which presumably are connected with phase structural transformations at these heterostructures heteroboundaries, are revealed.