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**Defect reduction in HgCdTe layers by MBE growth on CdTe mesas** RAMANA BOMMENA, University of Illinois Chicago, CHAD FULK, JUN ZHAO, TAE LEE, SIVALINGAM SIVANANTHAN — The performance of infrared detectors is limited by the high defect density in the HgCdTe epilayers especially in the long wavelength region. This necessitates the growth of low defect density material for device fabrication. Patterned CdTe mesas have been proposed to grow low defect density HgCdTe epilayers by MBE. The reduction of defect density by growth on patterned substrates has been reported for different heteroepitaxial systems[12] We report the growth of HgCdTe epilayers on CdTe mesas, fabricated from CdTe epilayers grown on silicon. A bright field mask with circular features of different sizes (ranging from 80$\mu$m-310$\mu$m) was used to fabricate mesas by contact lithography and wet isotropic etching. HgCdTe epilayers were grown in a Riber 32P MBE system. Etch pit density measurements were made on the epilayers and a reduction of EPD was observed on the mesas compared to the planar regions of the sample. This reduction of EPD could provide a breakthrough in the infrared technology.

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Ramana Bommena

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