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Transfer of Epitaxial Thin Films to Carrier Substrates CARLEY MIKI, GABRIEL A. DEVENYI, STEPHEN JOVANOVIĆ, KRISTOFFER MEINANDER, JESSICA CARVALHO, GUOZHEN ZHU, JOHN S. PRESTON, McMaster University — CdTe and ZnTe are important materials in the semiconductor industry and are currently being used in many devices such as solar cells, laser diodes, detectors, and LEDs. Sapphire substrates (Al_2O_3) have been found to yield high quality epitaxial films of these materials, but the cost of this substrate makes large scale growths unrealistic. Recently, a novel technique developed at McMaster University has been successful in transferring large areas of CdTe and ZnTe films grown by pulsed laser deposition from sapphire to a wide variety of carriers without altering the film or substrate. This allows the sapphire to be reused for an indefinite number of growths without extensive treatment, and films to be transferred to various carriers while maintaining their quality. The physics of this technique is currently not well understood, prompting an investigation of the interface between the film and substrate to characterize the atomic structure in this region. Results from this study will help to refine this technique and identify potential for new applications.

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