EFFICIENT TECHNIQUES IN Si AND SiC TO IMPROVE THE QUALITY OF ION-CUT LAYERS, O. W. Holland, Oak Ridge National Laboratory, Oak Ridge, TN 37831-6048.

The quality of a heterostructure formed by ion-cutting depends, in large measure, on the ability to recover the intrinsic properties of the transferred films degraded by high-dose H^+-implantation. The ion-cut process depends upon the stress produced by high-dose, hydrogen implantation to cause a physical separation within the lattice. This situation is remedied somewhat by techniques that either reduce the total dose or ones more specifically designed to minimize damage. Development of such techniques for processing Si and SiC will be discussed. This will range from processing at elevated temperatures to the use of channeled-ion implantation to selectively avoid damaging the transfer layer. Also, a two-step implantation scheme for reducing the dose needed for ion-cutting will be discussed. The results will demonstrate that ion-cutting techniques exist that can efficiently transfer thin-films of good quality.

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