THE PHYSICAL AND CHEMICAL ROLES OF HYDROGEN IN LAYER TRANSFER, Tony E. Haynes, Oak Ridge National Laboratory, Oak Ridge, TN 37831.

The ability to transfer thin-film layers by ion implantation of hydrogen depends upon a balance between several competing processes involving the implanted H atoms. H atoms become trapped at point defects produced during implantation, passivate internal surfaces formed during crack growth, and react to form H_2 gas that provides stress to drive crack growth. We illustrate how the balance between these processes can be modified by such steps as co-implantation with other species (e.g., He^+) or implantation at low or high temperatures to affect the efficiency of layer transfer.

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