

Magnetic properties of sol-gel derived Ni–Zn ferrite thin films on yttria stabilized zirconia buffered Si(100)

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The effects of yttria stabilized zirconia (YSZ) buffer layers for the sol-gel derived Ni–Zn ferrite thin films on SiO₂/Si(100) substrates were investigated. The 500 Å thick YSZ buffer layers were found to effectively suppress the diffusion of Si into the ferrite thin films. As a consequence, films with lower H_c and higher M_s could be obtained by annealing at higher temperature (900 °C), which was not accomplished in the films without the buffer layer due to the Si diffusion. The angular variation of H_c with respect to the direction of applied field shows that a films without the buffer layers deviates more from the domain wall motion, thus, the diffused Si was suggested to segregate at the grain boundaries of the ferrite film and to reduce the intergranular exchange coupling. © 1999 American Institute of Physics. [S0021-8979(99)17908-8]