**FIG. 1.** Resistivity of 30 nm thick TiN films deposited on various ~ 10 nm thick interfacial layers using: (a) NH$_3$, (b) N$_2$/H$_2$, and (c) N$_2$ plasma gases.

**FIG. 2.** Bright-field STEM micrographs acquired for (a) TiN(30 nm)/MoO$_3$(11 nm)/SiO$_2$/Si, (b) TiN(30 nm)/TiO$_2$(10 nm)/SiO$_2$/Si, and (c) TiN(30 nm)/SiO$_2$/Si samples.

**FIG. 3.** Resistivity of TiN films (57 nm) grown on various substrates: sapphire (0001), SrTiO$_3$ (001), MgO (001), and SiO$_2$/Si before and after postdeposition annealing (650 °C/vacuum/1 h).

**FIG. 4.** XRD spectra obtained by the rocking curve technique for TiN (45 nm) films simultaneously deposited on either (111) or (001) oriented MgO single crystal substrate. The rocking curve spectra were collected for either TiN (111) or (002) reflection, respectively.