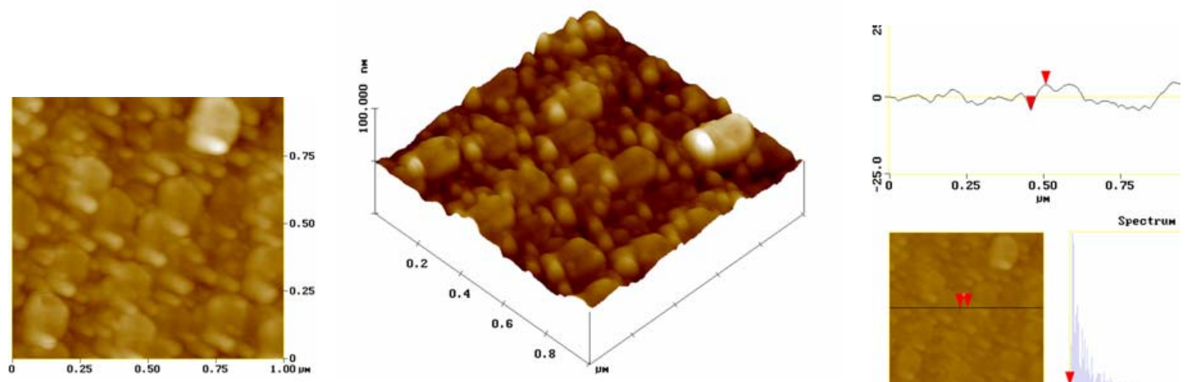
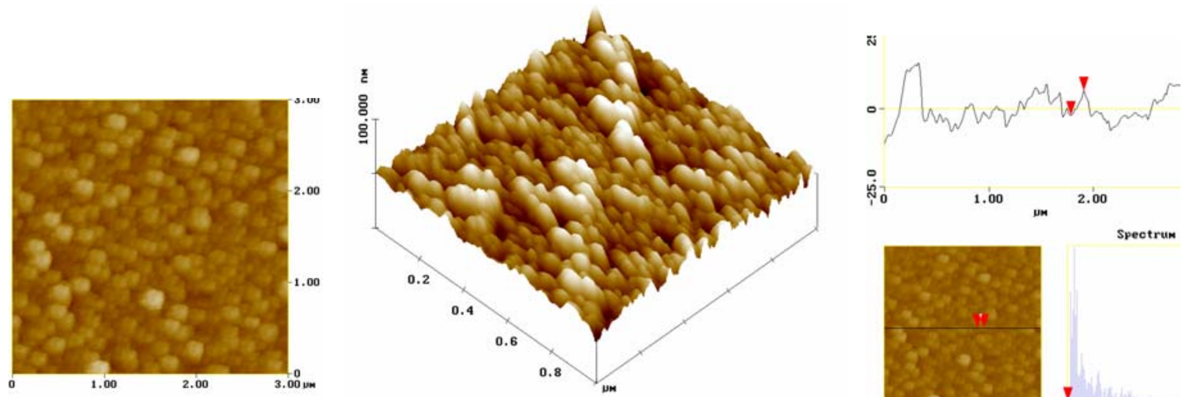
B3、550℃ H_2:200 (Ni 7 nm)；Rms 3.274 nm



B4、550℃ H_2:200 (Ni 7 / TiN 20 nm)；Rms 4.900 nm



B5、550℃ H_2:200 (Ni 7 / TaN 10 nm)；Rms 3.711 nm

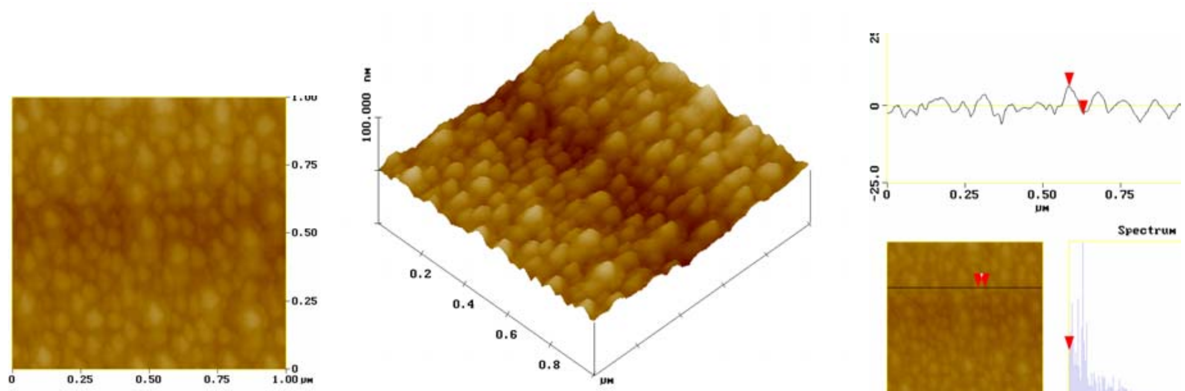
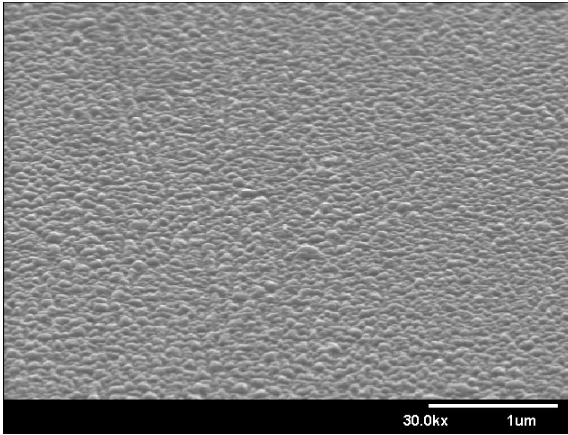
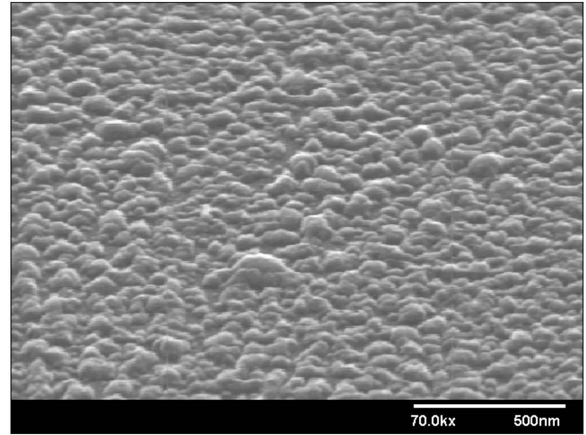


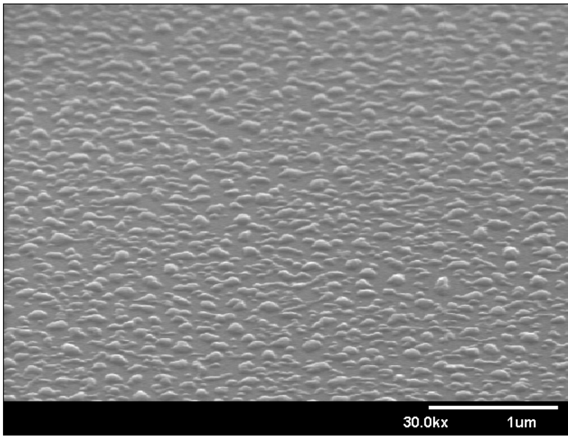
圖 4-19 製程 B 有緩衝層對照組試件(4、5) AFM 圖面

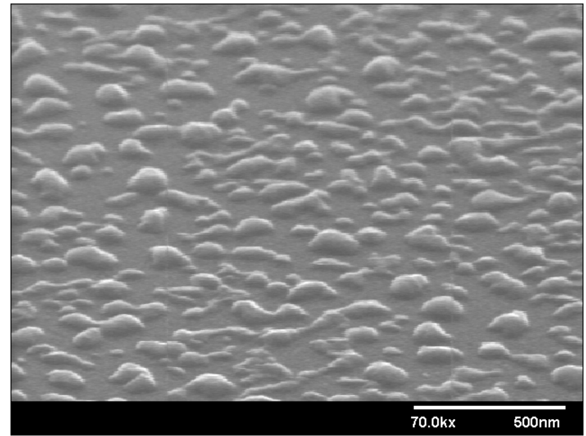
C3、550℃ H_2:300 (Ni 7 nm)



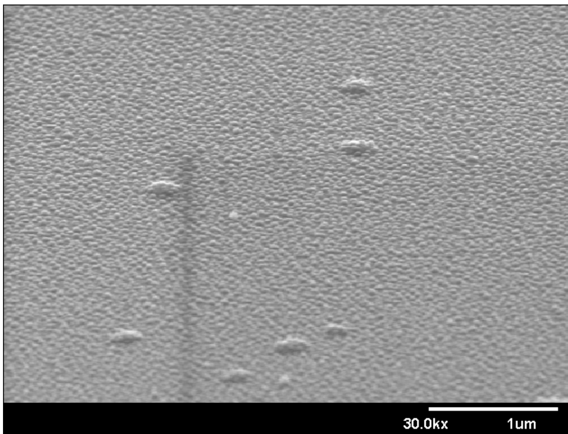


C4、550℃ H_2:300 (Ni 7 / TiN 20 nm)





C5、550℃ H_2:300 (Ni 7 / TaN 10 nm)



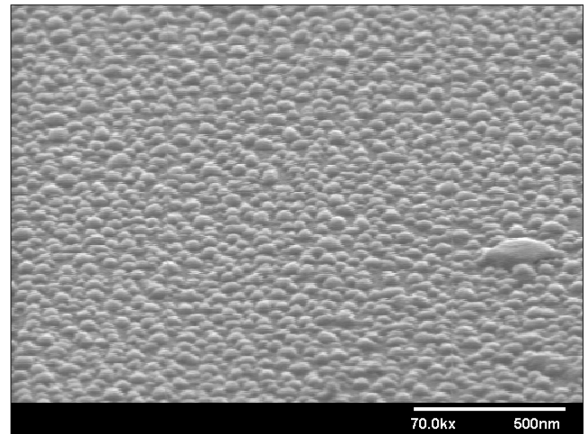
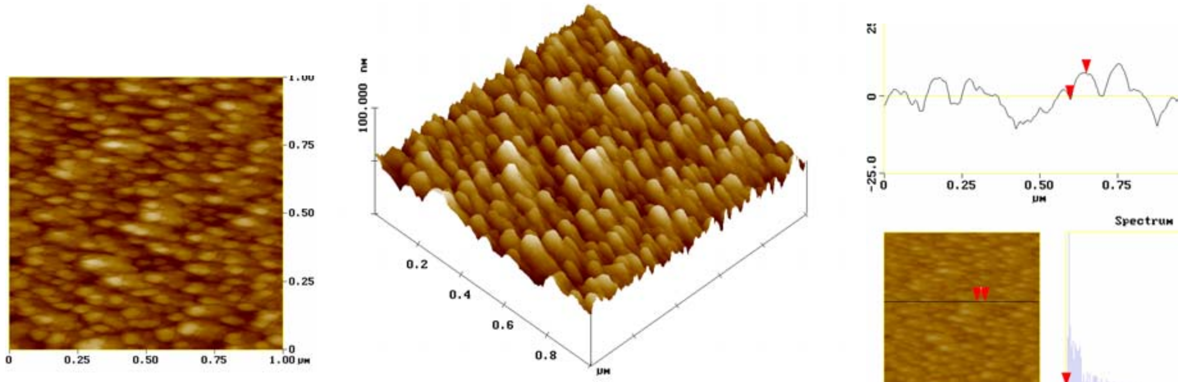
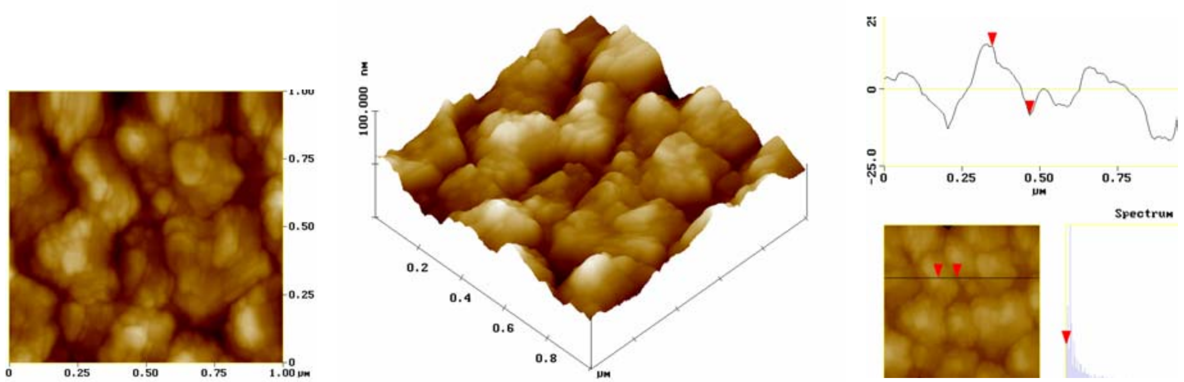


圖 4-20 製程 C 有緩衝層對照組試件(4、5) SEM 圖面(30、70 kx)

C3、550℃ H_2:300 (Ni 7 nm)；Rms 4.318 nm



C4、550℃ H_2:300 (Ni 7 / TiN 20 nm)；Rms 5.951 nm



C5、550℃ H_2:300 (Ni 7 / TaN 10 nm)；Rms 3.376 nm

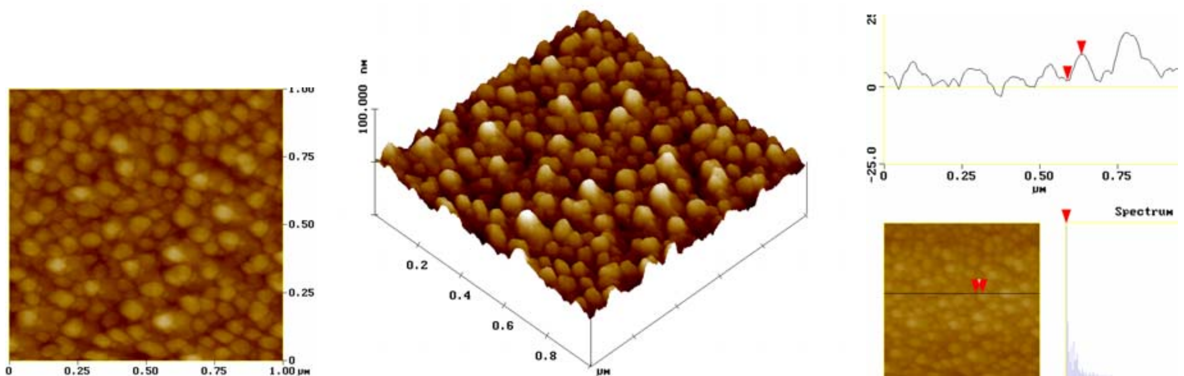
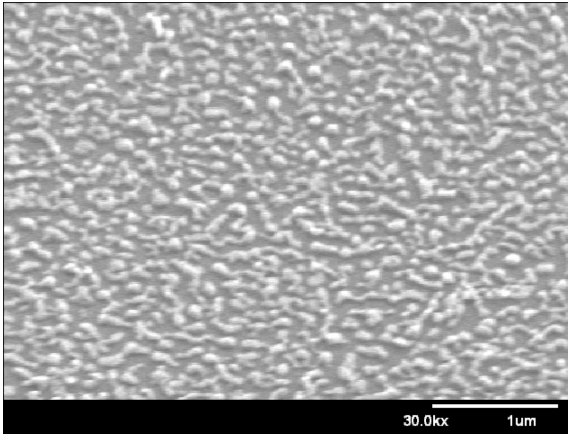
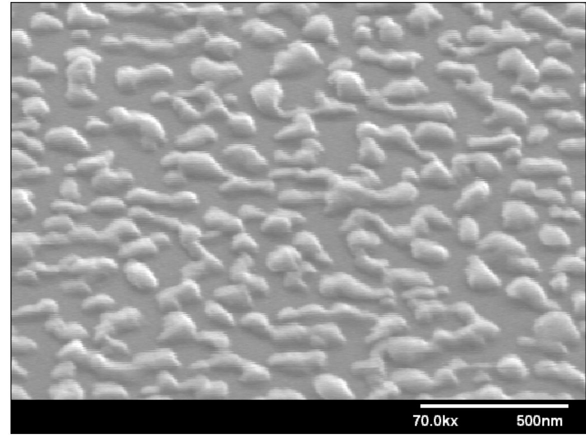


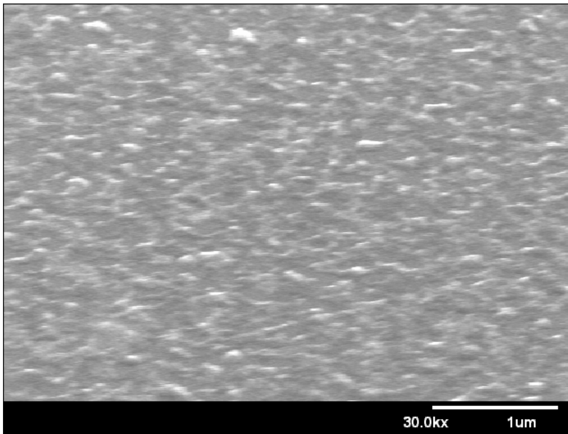
圖 4-21 製程 C 有緩衝層對照組試件(4、5) AFM 圖面

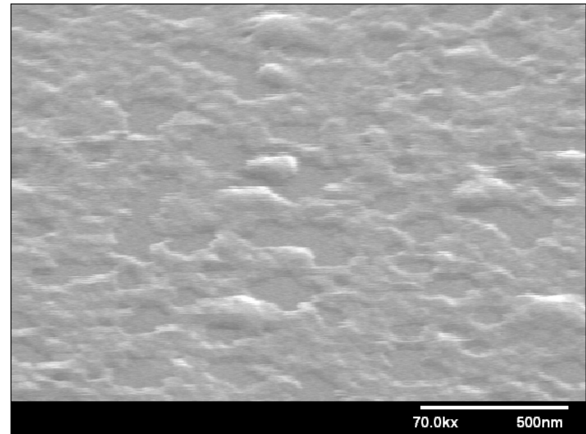
D3、600℃ H_2:100 (Ni 7 nm)



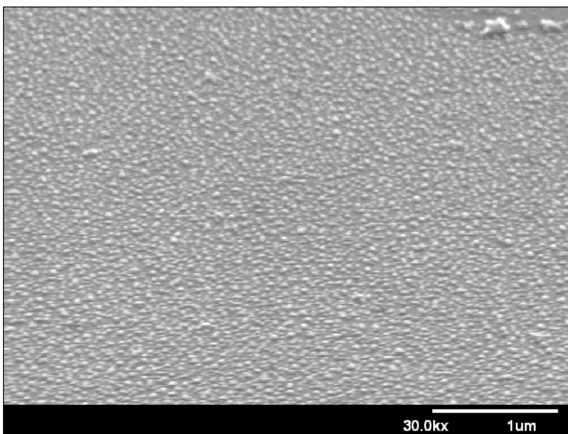


D4、600℃ H_2:100 (Ni 7 / TiN 20 nm)





D5、600℃ H_2:100 (Ni 7 / TaN 10 nm)



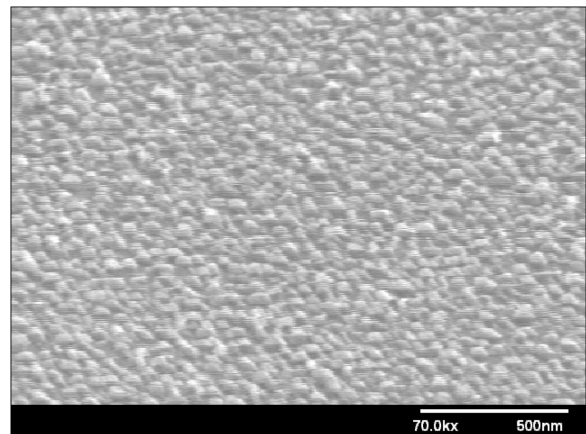


圖 4-22 製程 D 有緩衝層對照組試件(4、5) SEM 圖面(30、70 kx)