# Supplementary Information

## Volume plasmon blueshift in dimensionally thin silicon films embedded within Be/Si periodic multilayer mirrors

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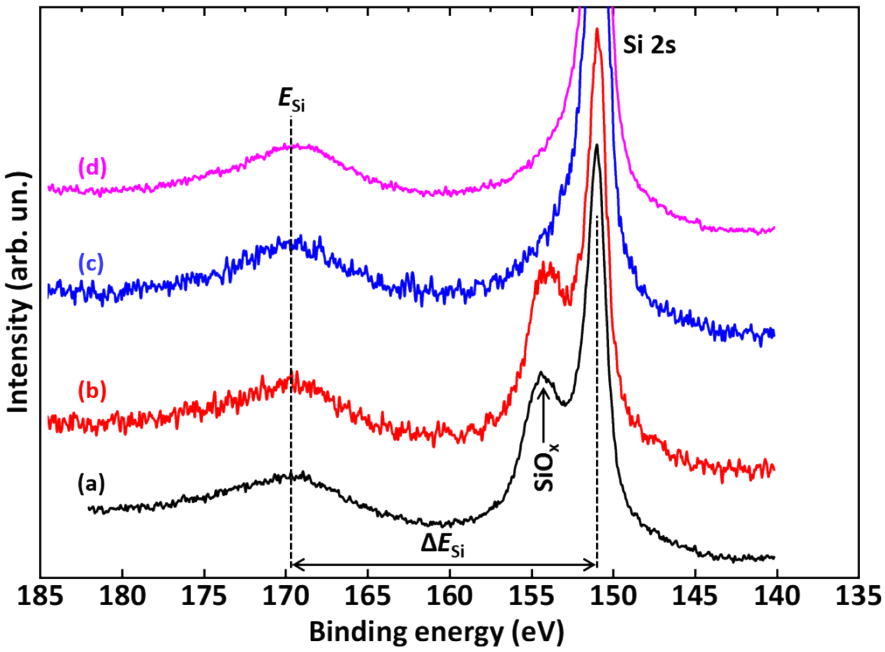


Fig. SI-1. Shift of plasmon energy for modified surface of Si films in Be/Si periodic multilayer $Be_{6.09}/Si_{1.34}$ with the consideration of shift of satellite Si 2s photoelectron energy: (a) as-deposited (b) degreased, and $Ar^+$ ion sputtering of energy 800eV for duration of (c) 300 s and (d) 420 s.

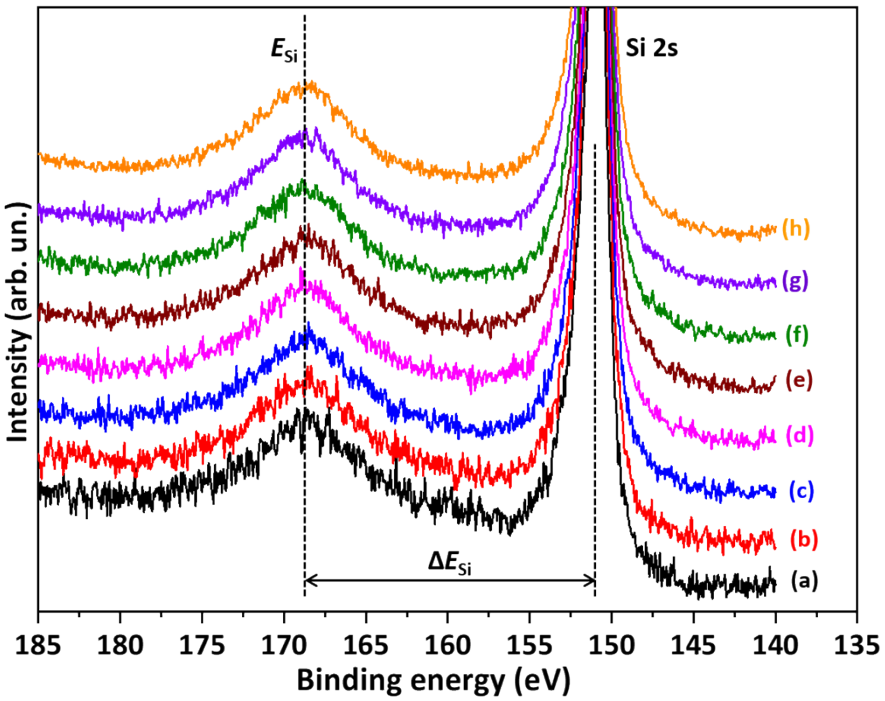


Fig. SI-2. Angle dependent plasmon energy shift of Si films embedded in $Be_{4.24}/Si_{2.81}$ periodic multilayers with the consideration of energy shift of Si 2s photoelectrons; (a) 0 degrees – normal photoelectron emission (b) 10 (c) 20 (d) 30 (e) 40 (f) 50 (g) 60 and (h) 70 degrees; intensity is normalized.