## Supplementary Document

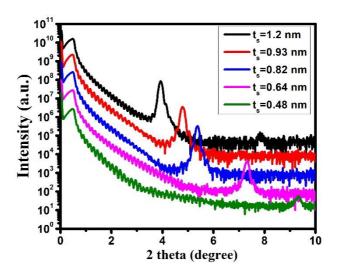


Figure 1: X-ray reflectivity plot for ATA NLs with  $Al_2O_3$  and  $TiO_2$  layer thicknesses varying between 1.2 to 0.48 nm.

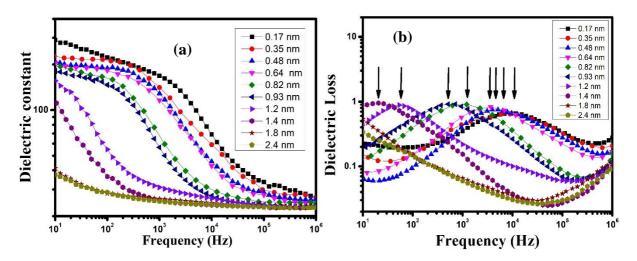


Figure 2: (a) Dielectric constant vs frequency and (b) dielectric loss vs frequency plots for ATA NLs with Al<sub>2</sub>O<sub>3</sub> and TiO<sub>2</sub> layer thicknesses varying between 2.4 to 0.17 nm.

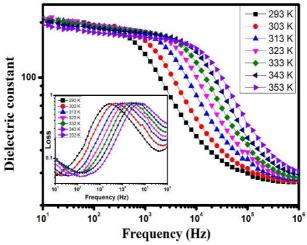


Figure 3: Temperature dependent dielectric constant vs frequency plots for 0.48 nm ATA NLs. Inset shows dielectric loss vs frequency at different temperatures for the same nanolaminate.