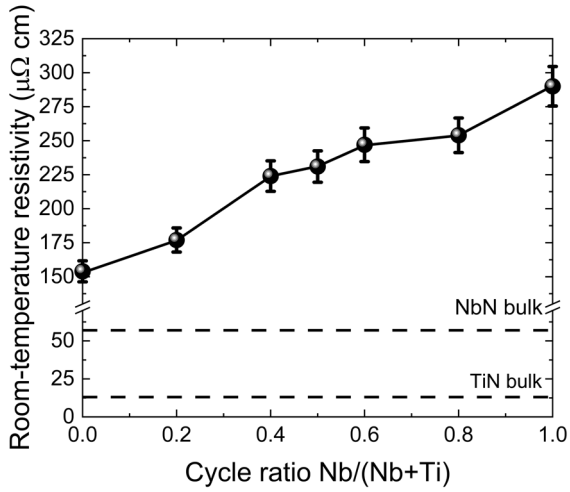

Figure 1 Low room-temperature resistivity for 26 – 55 nm $Nb_xTi_{1-x}N$ films prepared with varying Nb/(Nb+Ti) cycle ratio. The gradual rise of resistivity with Nb content suggests good mixing of the $Nb_xTi_{1-x}N$ constituents.

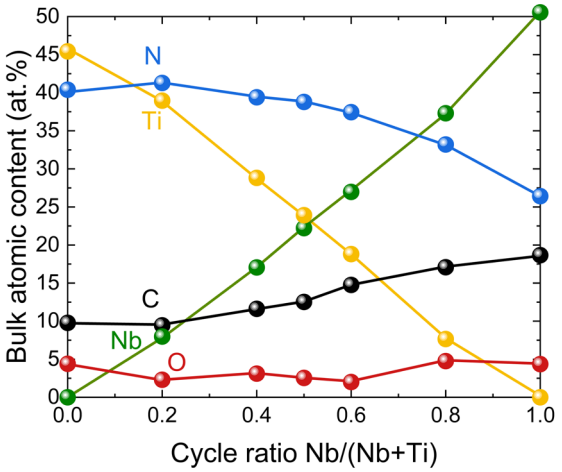

Figure 2 $Nb_xTi_{1-x}N$ bulk composition measured by XPS for films prepared with varying Nb/(Nb+Ti) cycle ratio demonstrating accurate composition control.

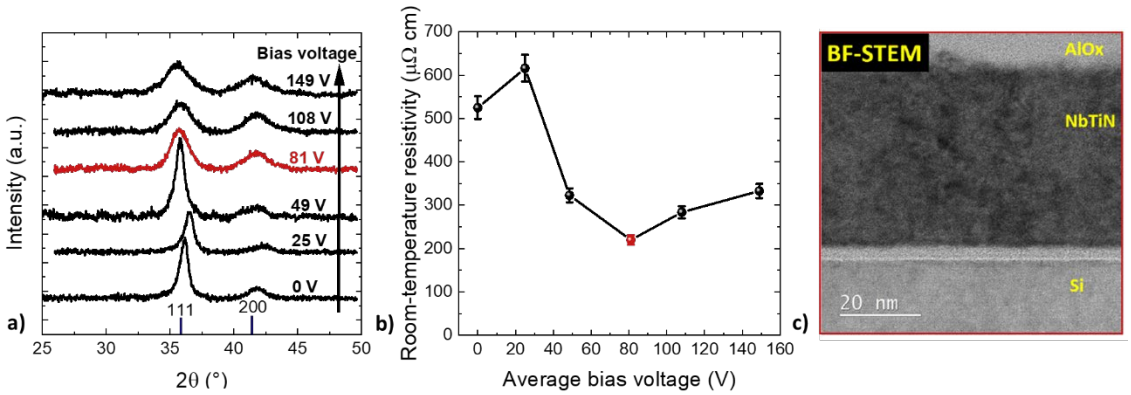

*Figure 3 Influence of substrate bias voltage on crystallinity and conductivity. **a)** X-ray diffractograms and **b)** room-temperature resistivity of 28 – 35 nm $Nb_{0.5}Ti_{0.5}N$ films prepared with Nb/(Nb+Ti) = 0.5 cycle ratio and varying bias voltage. **c)** BF-STEM image of a cross-section of a 49 nm $Nb_{0.5}Ti_{0.5}N$ film prepared with Nb/(Nb+Ti) = 0.5 cycle ratio and 90 V bias. The similar settings amongst the three images are indicated in red.*