

## S1-1.4

# Electrical Characterization of Individual Boron Nitride Nanowall Structures

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In this work, the individual hexagonal boron nitride (h-BN) microtubular structures with different diameter (ranging from  $\approx 0.2$  to  $\approx 2.5$   $\mu\text{m}$ ) and a wall thickness below 25 nm were investigated for the first time by integration on SiO<sub>2</sub>/Si substrate using a method based on focused ion beam deposition (FIB/SEM). The current-voltage (I-V) measurements were carried out in from a bias of - 40 V to + 40 V and in a temperature range from 25 to 100 °C. All fabricated devices showed excellent insulating properties and the resistance of  $\approx 111$  G $\Omega$  was calculated, which was attributed mainly to the top SiO<sub>2</sub> layer of the substrate measured without h-BN. The obtained results elucidate the excellent potential of the boron nitride microtubular structures with nanowalls to be used as high-quality shielding materials of other nano- and microstructures for application in nanoelectronics, nanophotonics and power electronics, where a relatively wide range of operating temperature is necessary.