Supplementary Information

Ion Energy Control During Remote Plasma ALD for Tuning Material Properties of Transition Metal Nitrides

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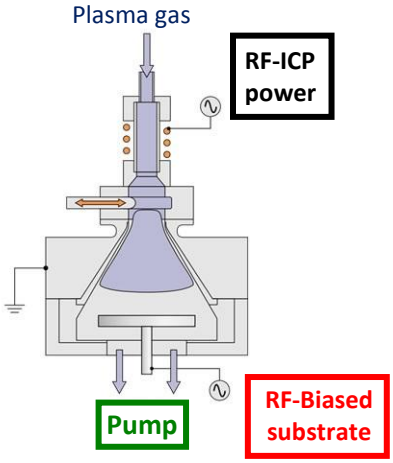

Figure S1. Schematic of a FlexAL system with substrate biasing incorporated through a second RF power supply connected to the substrate table. This allows enhancement of ion energy independent of ion flux.

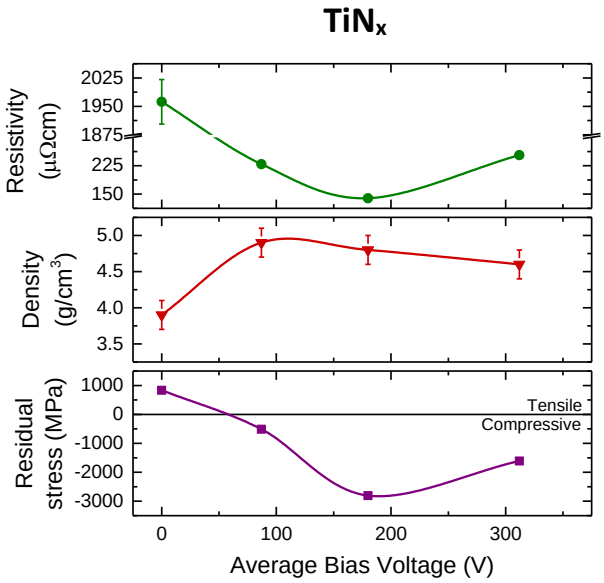

Figure S2. (a) Resistivity (b) mass density and (c) residual stress of TiN_x films deposited at 200 °C expressed as a function of the average bias voltage applied for the last half (5s) of the 10s Ar+H_2 plasma exposure step.

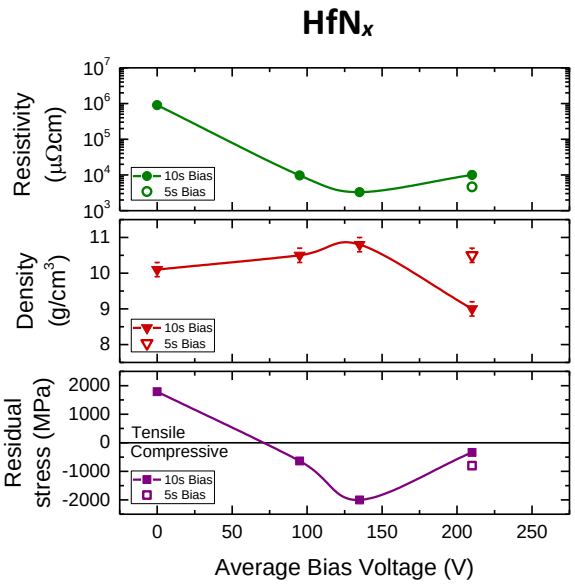

Figure S3. (a) Resistivity (b) mass density and (c) residual stress of HfN_x films deposited at 450 °C expressed as a function of the average bias voltage applied for the entire duration (solid symbols) and last half (5s, hollow symbols) of the 10s H_2 plasma exposure step. Lower resistivity and higher mass density was obtained using lower bias duration.