

Fig. 1: (a) Bright field TEM image of Pt nanoparticles grown on a 5nm thick Al_2O_3 film. Inset shows the diameter distribution plot of the Pt NPs. (b) High angle annular dark field – STEM cross section image of a Pt NPs-based strain gauge integrated on a flexible polyimide substrate. (c) Photograph and schematic illustration of a complete flexible strain sensor.



 $V_{in} = 1V$ 1.2 200 mbar ΔV_{out} (mV) 4 W. 0.8 100 mb 0.4 50 mba 0 mbar 0 mbai 0.0 100 200 0 Time (s)

Fig. 2: The relative variation of resistance $\Delta R/R$ as a function of tensile strain ϵ obtained in buckling mode and in conformational contact configuration.

Fig. 3: V_{out} response of an all-plastic pressure sensor in the [0-200]mbar range.