Supporting Information

A Novel Method for Investigating Electrical Breakdown Enhancement by Nm-sized Features

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CREM - potential drop across oxide layer

The actual potential drop across the oxide layer can be deduced directly from these measurements. Roughly, it is about 2.5 V higher than the sample bias, a value dictated by the supply of external (eFG) electrons. More precisely, it is given by referencing to the wafer signal, which, due to band bending changes and finite back impedance (between the top surface of the wafer, i.e., at its interface with the SiO_2 layer and ground) introduces a significant correction. The value that we find here, ~5.1 V for the gold channels, cannot be directly compared to that from the electrical measurements, presented in Figure 2a; see also refs [1] and [2].

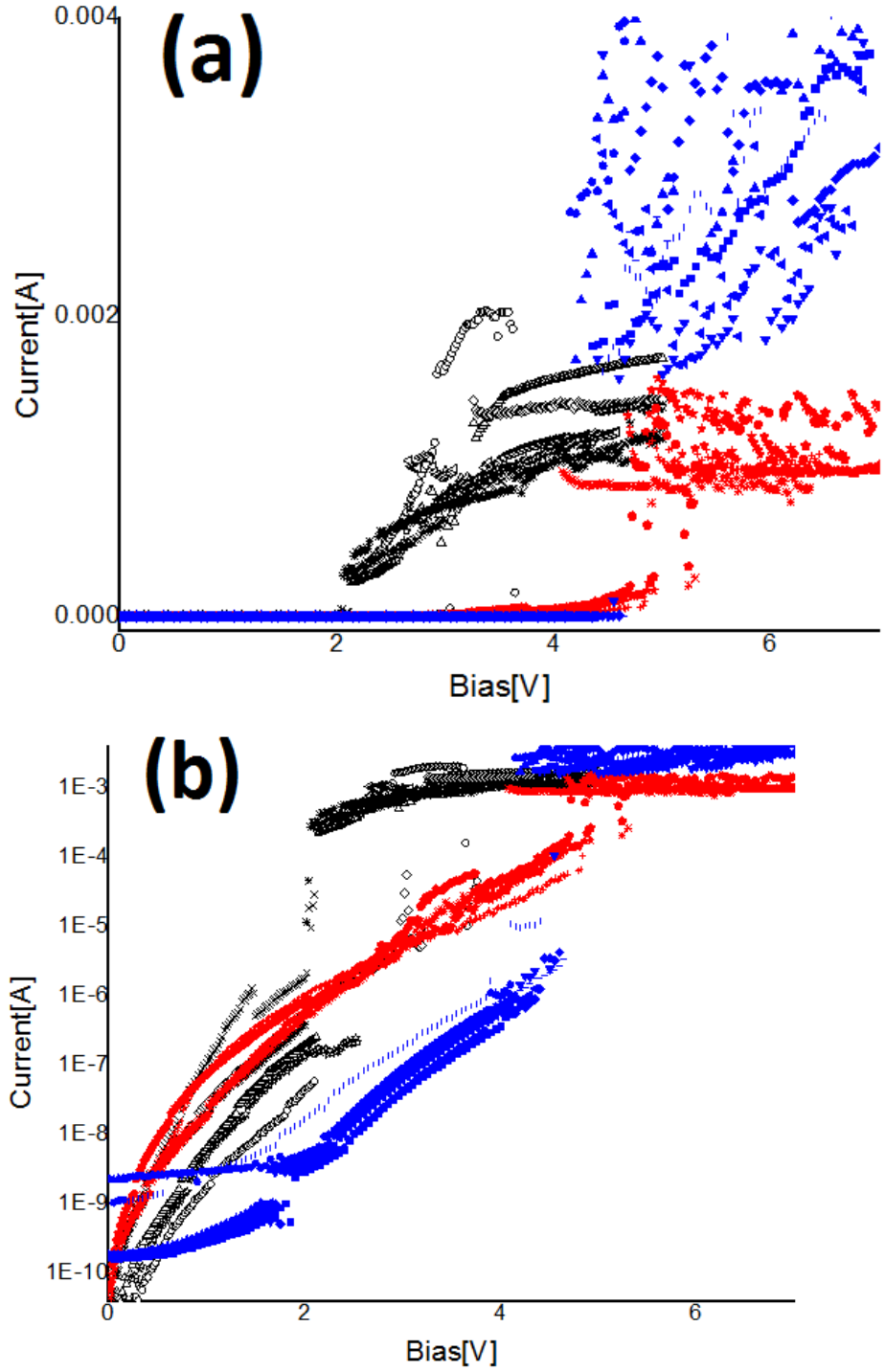

Figure SI-1: I-V curves for samples with and without NPs on the surface. Black - 5nm NPs with MoPALO top contact. Red – reference samples with MoPALO top contact. Blue - 5nm NPs with Au evaporation. (a) Linear scale. (b) Same data with semi-log scale.

References

1. H. Cohen, *Appl. Phys. Lett.*, 2004, **85**, 1271.
2. A. Rozenblat, Y. Rosenwaks, and H. Cohen, *Appl. Phys. Lett.*, 2009, **94**, 213501.