

## Improvement of weight update and retention characteristics of $\text{Pr}_{0.7}\text{Ca}_{0.3}\text{MnO}_{3-x}$ ECRAM via elevated temperature training

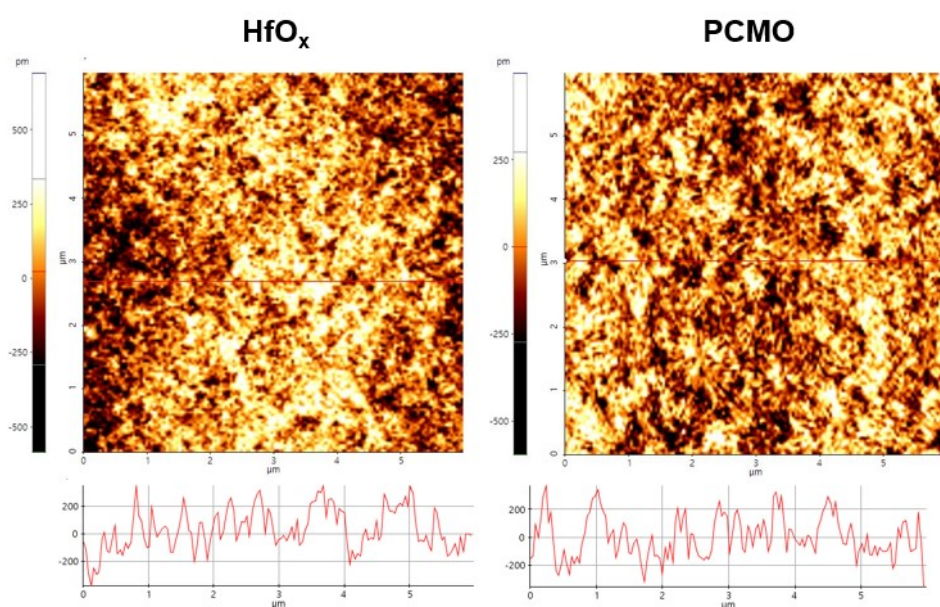


Fig.S1. AFM mapping on  $\text{HfO}_x$  electrolyte and PCMO channel surface.

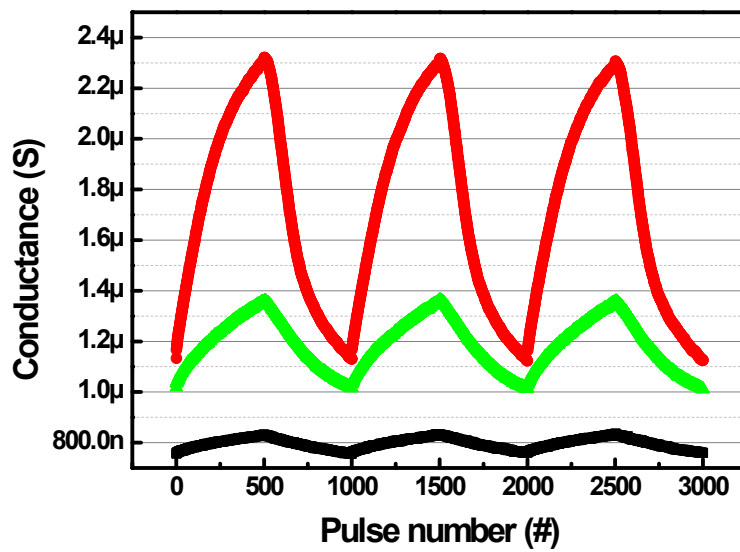


Fig.S2. Potentiation and depression characteristic according to ETs (373, 393 and 413 K)

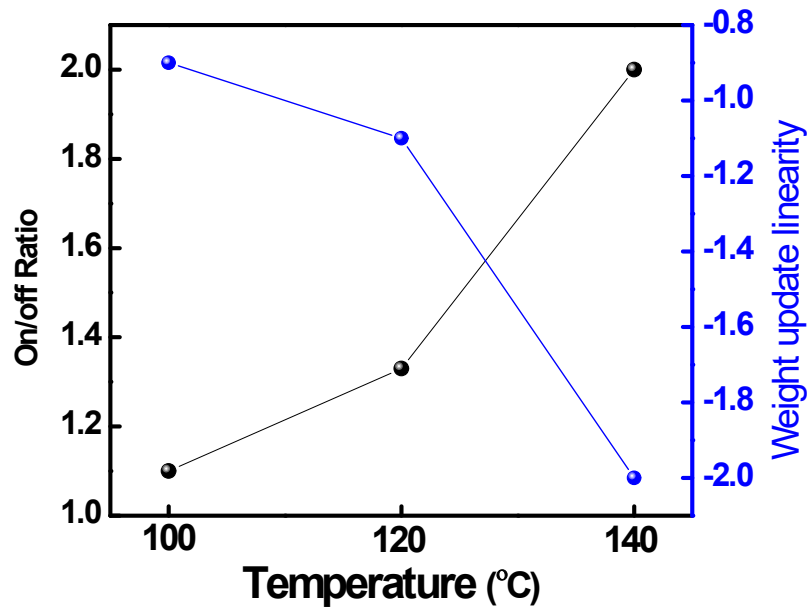


Fig.S3. On/off ratio and weight update linearity characteristics of PCMO ECRAM according to operating temperature.