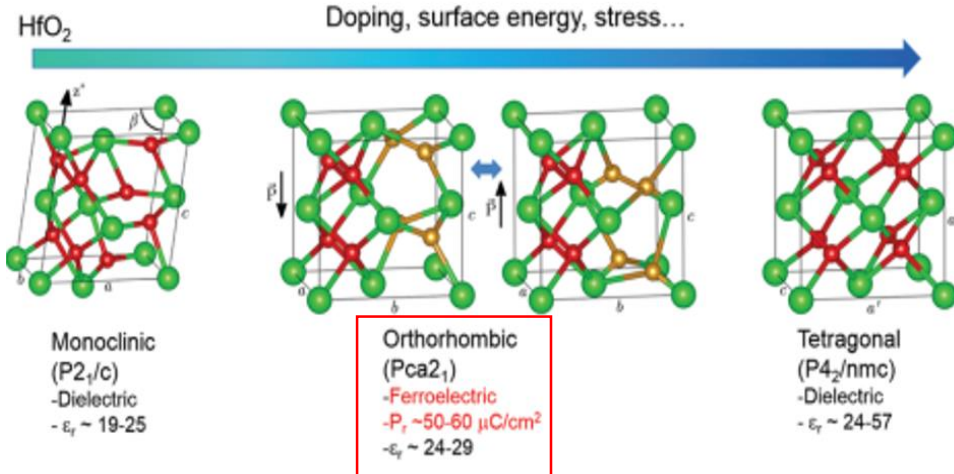


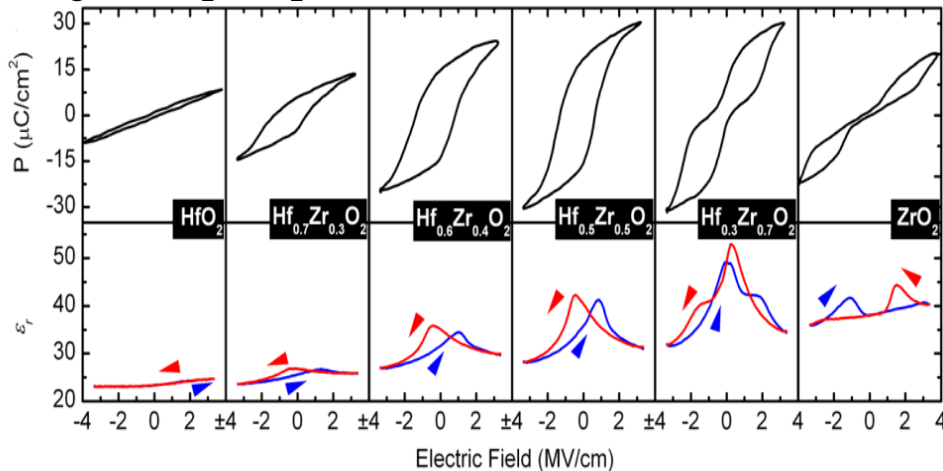
Achievements (2020.03~present)

Fig 1. HfO₂ phase transition



Ref. J.Mater. et al., IEEE, vol. 5,4677, 2017

Fig 2. HfO₂-ZrO₂ P-E, ε-E curve



Ref. johannes Muller et al., IEEE, vol. 12, 4318, 2012

Fig 3. Image of HfO₂ & ZrO₂ chip

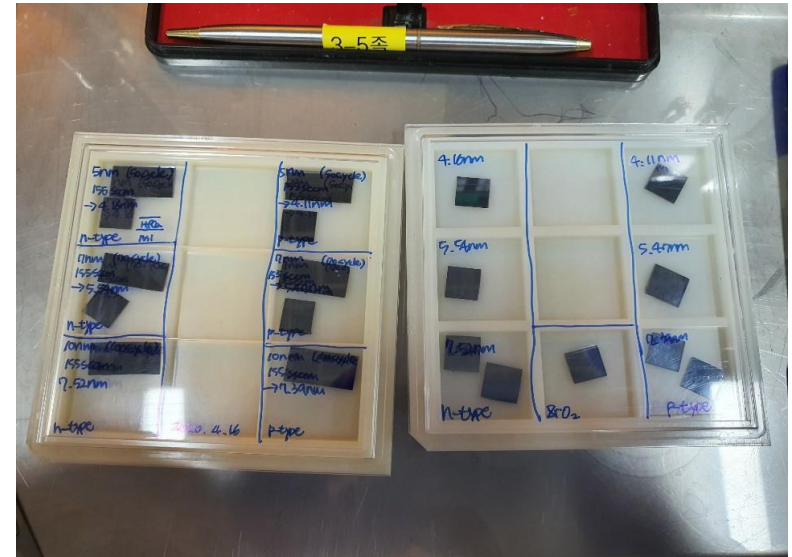
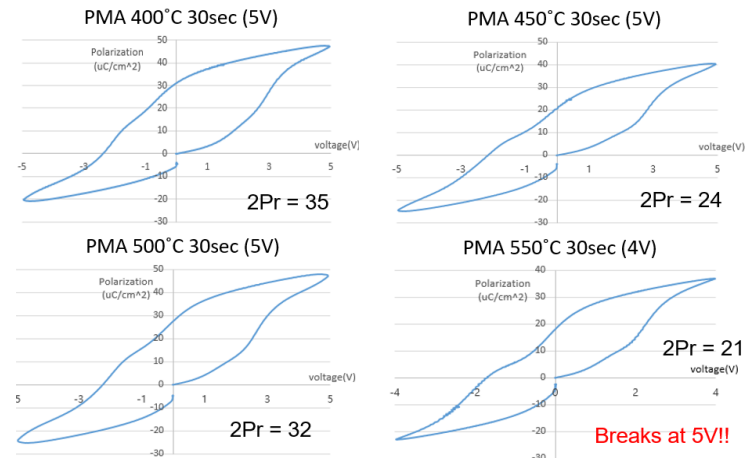
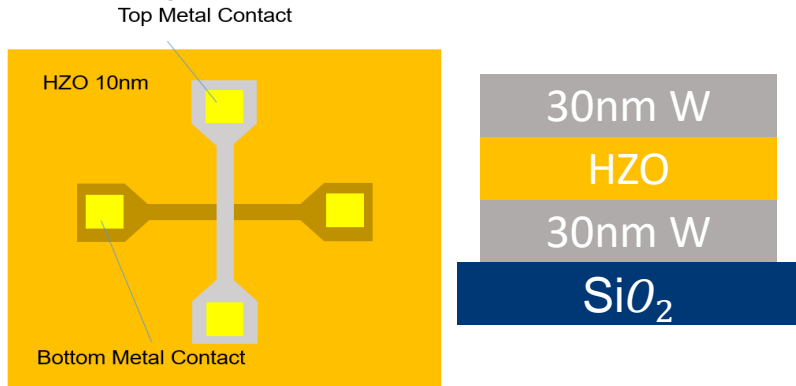


Fig 4. HZO capacitor P-V curve



Achievements (2020.03~present)

Fig 5. Crossbar capacitor structure



- Crossbar capacitor fabrication process

- 30nm Bottom W Sputtering
- Bottom Electrode RIE Etching
- Bottom Ti/Au Pad Sputtering
- ALD HZO Deposition
- 30nm Top W Sputtering
- 400~550°C RTA in N₂ for 30s

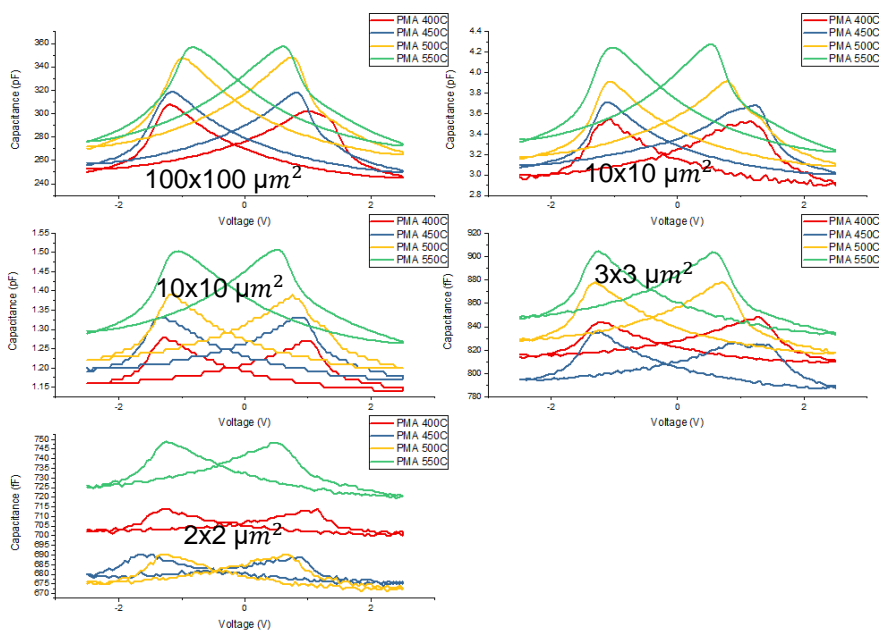


Fig 6. Crossbar Capacitor C-V curve

Fig 7. Crossbar Capacitor remnant Polarization

