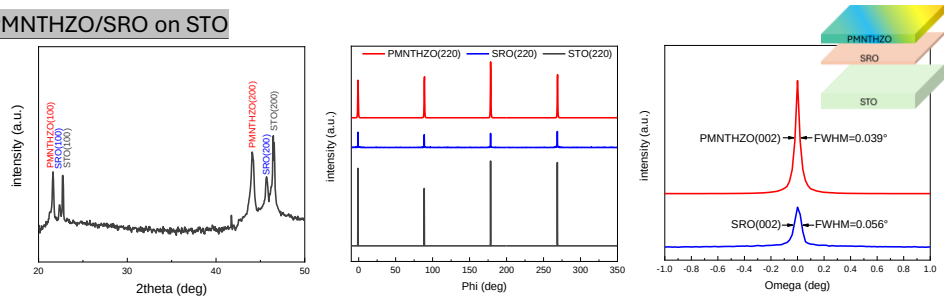
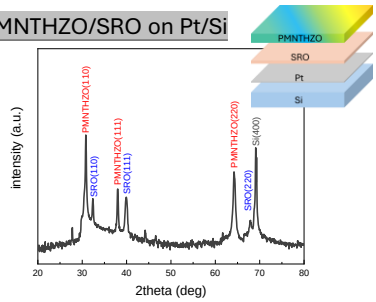
Revolutionizing High-Entropy MEMS with Superior Thermal Stability and Scalability

Structural Characterization

PMNTHZO/SRO on STO

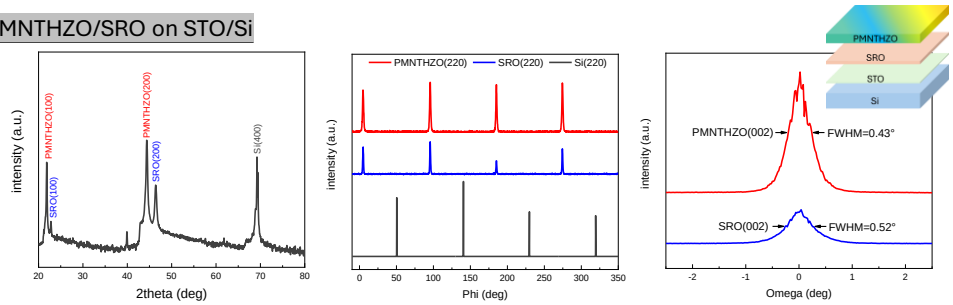


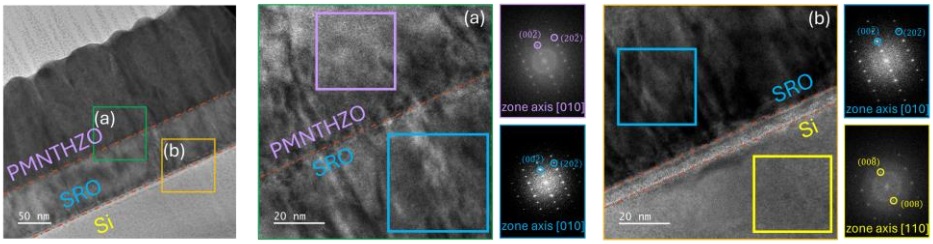
PMNTHZO/SRO on Pt/Si



- PMNTHZO and SRO can be epitaxially grown on STO substrate.

PMNTHZO/SRO on STO/Si

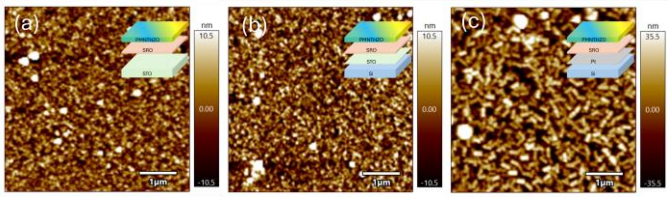




- The epitaxial relationship between PMNTHZO and SRO on STO/Si substrate can be observed by XRD and TEM.

Morphology

Atomic Force Microscope

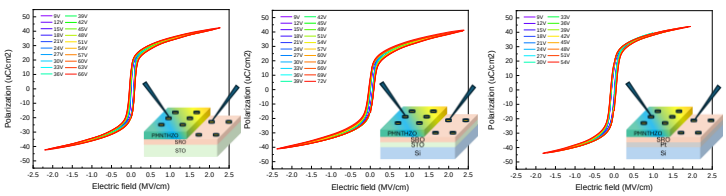


Substrate	RQ
STO	4.656 nm
STO/Si	5.554 nm
Pt/Si	18.409 nm

- **(a)-(b)**, The surface quality of PMNTHZO/SRO on STO and STO/Si substrate are great . **(c)** AFM image of PMNTHZO/SRO on Pt/Si substrate.

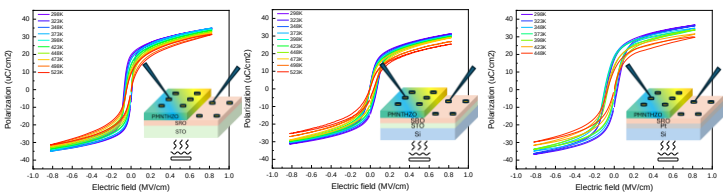
Electrical Properties

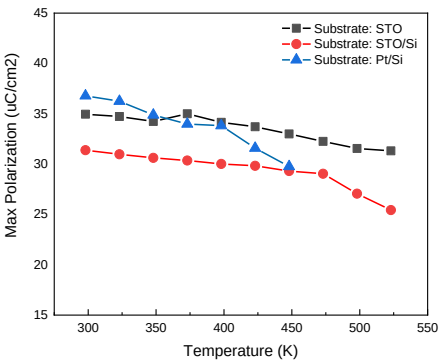
Breakdown Voltage measurement



- The P-E hysteresis loop of PMNTHZO demonstrates high breakdown voltage.

Thermal Stability measurement





- The P-E hysteresis loop with heating shows that the thermal stability are excellent for PMNTHZO.