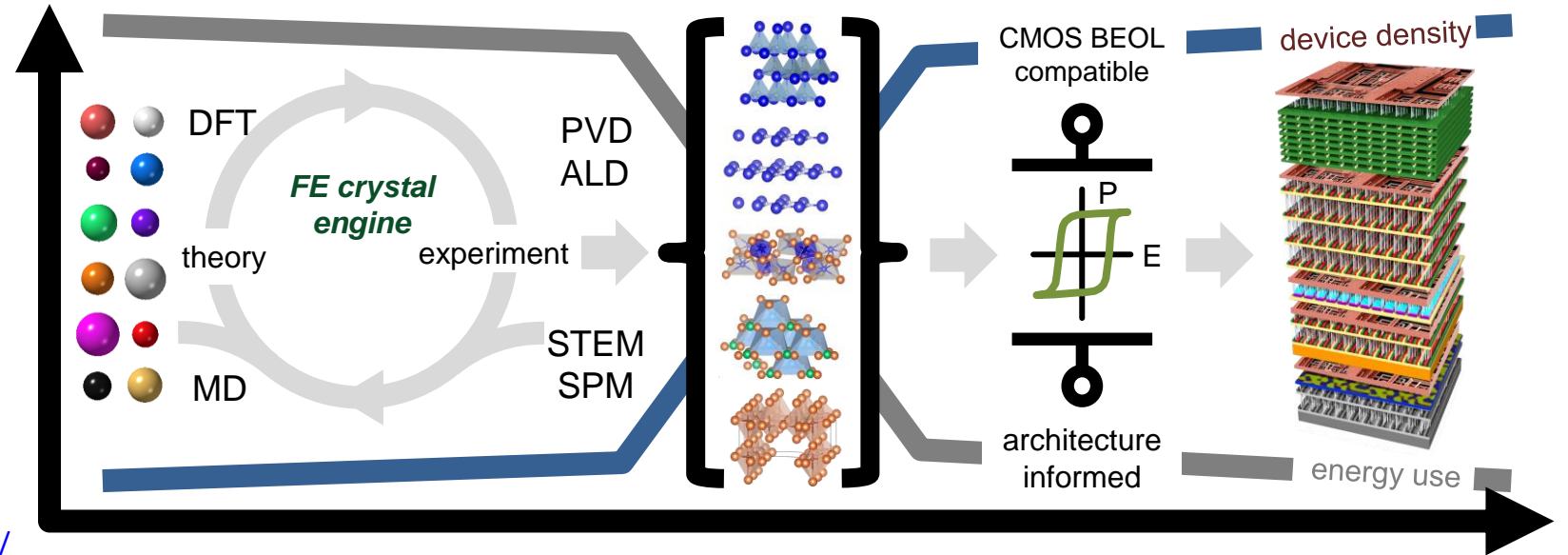


Center for 3D Ferroelectric Microelectronics (3DFeM)

Susan Troler-McKinstry (The Pennsylvania State University); Class: 2020-2024

MISSION: To develop three-dimensional, low-power, non-volatile ferroelectric memories that can be integrated reliably and densely interconnected with logic to enable low-power, 3D non-von Neumann circuits and systems.

<https://3dfem.psu.edu/>



RESEARCH PLAN

3DFeM will: (i) explore the fundamental mechanisms for emergence of ferroelectricity in new host crystal structures, (ii) tailor the coercive voltages through engineering emergent nanoscale inhomogeneity in scaled ultra-thin films, (iii) understand growth and defect dynamics in ferroelectric materials deposited with ancillary electronics at low temperatures at wafer scale, (iv) characterize materials at previously inaccessible time and length scales, and (v) demonstrate transition from materials synthesis to device functionality.