

Transmission electron microscopy (TEM) was employed to investigate 90° domain nucleation, growth and interactions of ferroelectric  $(\text{Pb}_{1-x}\text{Sr}_x)\text{TiO}_3$  (PSrT) ceramics under electrical loading in the present work. Experimental results imply that as-sintered specimens exhibit simple domain arrangements. Domain boundaries multiply quickly by nucleating from grain-boundaries and/or defective regions under electrical loading. A conventional 90° domain boundary may dissociate into a set of zigzag domain boundaries with unconventional polarization arrangements under alternate electrical stimulation. If the zigzag domains grew and were impeded by one or a set of boundaries, leading to domain pinning, another sets of zigzag domains may nucleate from a 90° domain boundary again. Nucleation, growth and pinning of domain boundaries repeated and finally highly strained grains with polarization degradation and defects appear during electric polarization cycles.