

## ABSTRACT

The goal is to use the sol-gel process to make perovskite  $\text{CaTiO}_3$  nanopowder. Different highly developed procedures were used to characterize the generated samples. The X-ray Diffraction Method was used to evaluate the structural properties of nanopowder (XRD). Scanning Electron Microscopy (SEM) was used to examine the surface morphology, while transmission electron spectroscopy was used to investigate the microstructure (TEM). In comparison to other nanopowder production methods, this method is convenient, low-cost, easy, simple, and effective. Using the Scherrer equation and the Williamson–Hall method, a Matlab algorithm was created to easily compute crystal size.