

Abstract Submitted
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Polar State in Freestanding Strontium Titanate Nanoparticles

TREVOR TYSON, TIAN YU, New Jersey Institute of Technology, MARK CROFT, Rutgers University, MEGAN SCOFIELD, DARA BOBB-SEMPLE, State University of New York at Stony Brook, JING TAO, Brookhaven National Laboratory, CHERNO JAYE, DANIEL FISCHER, National Institute of Standards and Technology, STANISLAUS WONG, State University of New York at Stony Brook — Monodispersed strontium titanate nanoparticles were prepared and studied in detail. It is found that ~ 10 nm as-prepared stoichiometric nanoparticles are in a polar structural state (with possibly ferroelectric properties) over a broad temperature range. A tetragonal structure, with possible reduction of the electronic hybridization is found as the particle size is reduced. In the 10 nm particles, no change in the local Ti-off centering is seen between 20 and 300 K. This work is supported by DOE Grant DE-FG02-07ER46402.

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