Ferroelectric Phase Transition Study of Coupling KTN Perovskites Oxide by Scanning Microwave Microscope. SHUOGANG HUANG\textsuperscript{1}, MARK REEVES\textsuperscript{2}, Department of Physics, George Washington University, JENNIFER SIGMAN\textsuperscript{3}, DAVID NORTON\textsuperscript{4}, Department of Materials Science and Engineering, University of Florida, HANS CHRISTEN\textsuperscript{5}, Solid State Division, Oak Ridge National Laboratory — We used a scanning near field microwave microscope to determine the thin film dielectric properties of KTN near transition temperature. For solid solution K(NbxTa1-x)O\textsubscript{3} thin film deposited on MgAl\textsubscript{2}O\textsubscript{3} substrate a 1st order phase transition was observed and for KTN 1x1 super lattice two 2nd order phase transitions were observed. Then a finite element method simulation was applied to numerically calculate the dielectric constant of the samples in different phases. The results show a strong consistent with the previous x-ray and capacitance measurements.

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