Characterization of BST films for high tunable thin film capacitor

Abstract: This is for the electrical characterization by IDC pattern using BST(Ba0.6Sr0.4TiO3) thin film. bst materials had been chosen for high frequency applications due to it's high permittivity and tunability. The BST thin films have been deposited on Al2O3 Substrates by Nd-YAG pulsed laser deposition with a 355nm wavelength at 700 °C. The post deposition annealing at 750°C in flowing O2 atmosphere for 1 hours. The capacitance of IDC patterns have been measured from 1 to 10 GHz as a function fo electric field (±40 KV/cm) at room temperature using inter-digital Au electrodes deposited on top of BST. The IDC patterns have three type of fingers number. For the 10 pairs finger was the best capacitance onto Al2O3 substrate. The capacitance was 0.9pF. Also Dielectric constant was been 351 at 100 mTorr and annealing temperature 750°C for 1 hour. The loss tangent was been 0.00531.