High Curie Temperature $BiInO_3$-$PbTiO_3$ Films

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Abstract: High Curie temperature piezoelectric thin films of xBiInO(3)-(1-x) PbTiO3 (x = 0.10, 0.15, 0.20, and 0.25) were prepared by pulsed laser deposition. It was found that the tetragonality of films decreased with increasing BI content. The dielectric constant and transverse piezoelectric coefficient (e(31,f)) exhibit the highest values of 665 and -13.6 C/m(2) at x = 0.20. Rayleigh analyses were performed to identify the extrinsic contributions to dielectric nonlinearity with different x. The composition with x = 0.20 also exhibits the largest extrinsic contributions to dielectric nonlinearity. The Curie temperature (T-C) is increased with increasing x content from 558 to 633 degrees C; T-C at x = 0.20 is about 584 degrees C. (C) 2014 AIP Publishing LLC.