

13TH INTERNATIONAL CONFERENCE ON
ADVANCED MATERIALS AND NANOTECHNOLOGY
OCTOBER 26-28, 2017 OSAKA, JAPAN

Low voltage, high Q $\text{Bi}_{1.5}\text{MgNb}_{1.5}\text{O}_7$ thin film varactors

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The $\text{Bi}_{1.5}\text{MgNb}_{1.5}\text{O}_7$ (BMN) thin film varactors were fabricated on sapphire substrates by RF magnetron sputtering and microfabrication technologies. The sputtered BMN thin films exhibited low dielectric loss of ~ 0.0018 - 0.007 and superior dielectric tunability of $\sim 50\%$ at an applied bias field of 1.5 MV/cm with the maximum permittivity of 179. The dielectric properties of varactors employing BMN thin films were investigated. The BMN thin film varactors demonstrated a high Q-factor of 356 at 1 MHz, but this value slightly decreased with increasing frequency in the frequency range of 100 MHz-6 GHz due to the Q-factor restricted by the conductive loss of electrodes at high frequencies.

Biography

Libin Gao has completed her PhD from University of Electronic Science and Technology of China and as co-educational PhD student in Harvard University, School of Engineering and Applied Sciences. Presently, she is an Assistant Professor of University of Electronic Science and Technology of China. She has published more than 20 papers in reputed journals and has been serving as an Editorial-Board Member of repute.

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