Microwave Frequency Tunability via Heterogeneous Oersted Field Tilted Polarizer based Spin Torque Nano Oscillator

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**Abstract.**In this work, we have theoretically modeled a heterogeneous Tilted Polarizer [TP] based Spin Torque Nano Oscillator [STNO] along with the consideration of Current Induced Oersted Field [CIOF]. The precession of magnetization dynamics led by Spin Transfer Torque [STT] is studied numerically by solving the equation called Landau-Lifshitz-Gilbert-Slonczewski [LLGS]. Here, β is the independent tilt angle of fixed layer and θ is the angle between free layer magnetization and the easy axis of the device respectively. The maximum frequency of the OF TP STNO device is of about 77.5 GHz and PSD of 1.3 μW/mA2/GHz with 50 kA/m as the strength of CIOF. The author insinuates that the modeled OE TP STNO device is applicable towards the High-Frequency applications and opens a new platform for forthcoming spin-based devices.