

Magnetization dynamics in heavy metal/ferromagnet/heavy metal trilayers induced by spin Hall effect

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The spin Hall effect in heavy metals (HM) converts a charge current into a pure spin current, which may exert a torque on the magnetization in the adjacent ferromagnet (FM). In HM/FM/HM trilayers, the additional Oersted fields induced by the current flow may cancel each other out, which leads to pure spin-Hall-induced dynamics. In this work, trilayers consisting of W/CoFeB/Pt were deposited using magnetron sputtering. Pt and W were chosen due to the opposite sign of spin Hall angle. The ferromagnetic resonance (FMR) spectra in microstrips were measured using spin diode technique. The developed model based on FMR line-shape analysis enables derivation of the total spin Hall angle.

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