TIFR Centre for Interdisciplinary Sciences
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Internal Seminar

Magnetic and Anomalous Hall Effect Studies on Tb-Fe and Tb-Fe-Co thin films

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Amongst several rare-earth-transition intermetallic films, Tb-Fe and Tb-Fe-Co films have been known for their applications in magneto-optical recording media, perpendicular magnetic tunnel junctions and perpendicular magneto-resistive random access memory (MRAM) devices, due to the strong uniaxial magnetic anisotropy normal to the plane of the film (PMA). $Tb_{25}Fe_{75}$, $Tb_{31}Fe_{69}$ and $Tb_{44}Fe_{56}$ films were found to have PMA at 300 K with the change in the sign of Hall resistivity (ρ_H) from positive ($Tb_{31}Fe_{69}$) to negative ($Tb_{44}Fe_{56}$), indicating compensation of the moments of Fe and Tb between these compositions. In Tb-Fe-Co films, the change in the sign of ρ_H observed from positive to negative between $Tb_{35}Fe_{37}Co_{28}$ and $Tb_{56}Fe_{25}Co_{19}$ films with PMA, implied compensation of Tb and Fe/Co moments between these compositions.

Tuesday, Jan 31st 2017

2:00 PM (Tea/Coffee at 1:45 PM)

Seminar Hall, TCIS