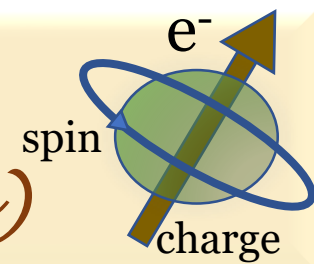




W2S Seminar

(Webinar series on Spintronics)



All-optical switching in FeCoB/Ta/[Tb/Co]_N electrodes

Speaker:

Prof. Luis Avilés Félix

Magnetic Resonance Laboratory

Comisión Nacional de Energía Atómica CNEA, Argentina

Date and time:

21.10.2021 at

8.00 pm IST

i.e. 4.30 pm CET

Abstract

Since the first observation of all-optical switching of magnetization in GdFeCo using femtosecond laser pulses, there has been significant interest in exploiting this process for data-recording applications. In particular, the ultrafast speed of the magnetic reversal can enable the writing speeds associated with magnetic memory devices to be potentially pushed towards THz frequencies. In this talk I will describe the development of all-optically switchable electrodes consisting of FeCoB/Ta/[Tb/Co]_N and its integration within a magnetic tunnel junction. We explored the magneto-optical properties of the electrodes and its thermal stability upon different annealing temperatures, a key step for the enhancement of the performance of a MTJ. Our all-optical switching electrodes were integrated into a perpendicularly magnetized junction and the electrical evaluation of nanopatterned devices showed TMR ratios up to 38% depending on the size of the junctions. These results demonstrate the viability of integrating optically-switchable materials in to MTJs and still obtaining high TMR values.

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Contact:

Dr. Subhankar Bedanta (Convenor W2S)

Email: w2s-spintronics@niser.ac.in

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