W2S Seminar
(Webinar series on Spintronics)

Antiferromagnetic Insulatronics

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Date and time:
11.03.2021 at
03.00 PM
Via
Zoom

Abstract

Recently, antiferromagnetic materials have received renewed attention due to possible manipulation based on new approaches such as photons or spin-orbit torques. We recently realized switching in the metallic antiferromagnet Mn_2Au by intrinsic staggered spin-orbit torques. While switching by staggered intrinsic spin-orbit torques in metallic AFMs requires special structural asymmetry, interfacial non-staggered spin-orbit torques can switch multilayers of many insulating AFMs capped with heavy metal layers. We probe switching and spin transport in selected collinear insulating antiferromagnets.

For the spin transport, spin currents are generated by heating as resulting from the spin Seebeck effect and by spin pumping measurements and we find in vertical transport short (few nm) spin diffusion lengths. For hematite, however, we find in a non-local geometry that spin transport of tens of micrometers is possible making this exciting for low power long distance information transport.

If interested to attend then please visit https://www.niser.ac.in/w2s-seminar/index.php