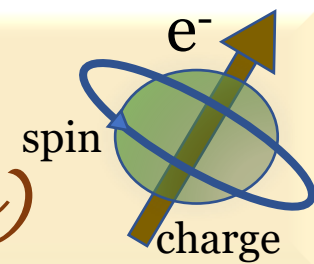




W2S Seminar

(Webinar series on Spintronics)



Anomalous Nernst effect for novel thermoelectric applications



Speaker:

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Group Leader of Magnetic Materials Group
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Date and time:
24th Sep.2020 at
6.30 pm
Via
Zoom

Abstract

Anomalous Nernst effect (ANE) is a thermoelectric phenomenon in magnetic materials that generates an electric field (E) to the perpendicular direction to both magnetization and given temperature gradient (∇T). The orthogonal relationship of E and ∇T gives us various advantage for a utilization in various thermoelectric applications such energy generation and heat flux sensor. However, the development of magnetic materials showing much higher thermopower of ANE (beyond $\sim 10\mu\text{V/K}$) is required. Recently we have studied ANE in magnetic Heusler alloys (such as $\text{Co}_2\text{MnAl}_{1-x}\text{Si}_x$ and $\text{Co}_2\text{MnGa}_{1-x}\text{Ge}_x$) and Fe-based simple binary alloys, and found large thermopower of ANE originating from their intrinsic electronic structure, i.e, Berry curvature and fine Fermi level tuning. We have also demonstrated a heat flux sensing using the prototype of flexible heat flux sensor. Future prospect of ANE-based applications will be introduced in this Webinar.

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