

We welcome you for the talk of

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about

Turning on the heat with spins and their transport across interfaces in heterostructures

Location & Date: DI 09.05.2023 15.00-16.15 Ort: PC-Seminarraum 3, Floor 2, Kolingasse 14-16, 1090 Wien.

Abstract: Spin-heat coupling is important from a fundamental perspective as well as for many thermoelectric and thermomagnetic applications. *Can we generate local heat with magnetic nanoparticles or 'super spins'? What about manipulation of spin transport using thermal gradients?* In this talk, I will provide some insights into these questions based on our research in a number of systems ranging from nanostructures to heterostructures including anisotropic nanoparticles, compensated ferrimagnets, topological systems, spin gapless semiconductors, interfaces of 2D materials like graphene, TMD on ferrites and garnets. The common theme is our ability to sensitively measure and tune the effective interfacial magnetic anisotropy in a large class of magnetic materials including bulk, nanoparticle assemblies and thin film heterostructures. I will describe how we combine conventional and relatively unconventional experimental techniques like magnetometry, RF transverse susceptibility, magnetocaloric effect, anomalous Nernst effect (ANE), spin Seebeck effect (SSE), FMR spin pumping (FMR-SP) to probe the fundamental physics of spin dynamics, spin-heat coupling, thermal spin transport across interfaces. Some recent results on our ongoing projects including core-shell and anisotropic nanoparticles, influence of magnetic anisotropy on spin Seebeck effect (SSE) and anomalous Nernst effect (ANE), universal scaling of SSE in compensated ferrimagnets, estimation of magnon propagation length will be discussed.



Hari Srikanth is a Distinguished University Professor at the University of South Florida. He received his Ph.D. in experimental condensed matter physics from the Indian Institute of Science, Bangalore and has been at USF since 2000 where he directs the Functional Materials Laboratory. His research spans a wide range of topics in magnetism and magnetic materials. He has around 300 publications and has given over 200 invited talks around the world. In 2019, he was an IEEE Magnetics Society Distinguished Lecturer. Hari is a *Fellow of the American Physical Society*, *Fellow of the Institute of Physics* and a *Senior Member of IEEE*. He currently serves as an Associate Editor for *Physical Review B* and Editor for *Journal of Alloys and Compounds*. Hari has been closely involved with the MMM and INTERMAG conferences for over 20 years serving as Publication Editor, Publication Chair and on program committees. He is a recipient of an *Alexander von Humboldt Research Award* and is affiliated with University of Duisburg-Essen during his AvH visits to Europe. Hari also received a *Fulbright Scholar Award* to be a visiting professor at Nanyang Technological University in Singapore and is a visiting professor at IIT Bombay. Hari is a symposium co-organizer for ICMAT 2023 in Singapore and focus topic co-organizer for ICM 2024 in Italy.