Special Issue

Spin Waves in Magnonic Crystals and Hybrid Ferromagnetic Structures

Message from the Guest Editor

In the last decade, the demand for alternatives to electric current in information technology (IT) has fueled interest in spin waves (SWs) as ultra-low-dissipation information carriers. Operating in the GHz range, SWs can be manipulated at the nanoscale in Magnonic Crystals, specially designed nanostructured periodic lattices. Their properties can be tailored through lattice design and external magnetic field tuning. Coupling SWs with ferroelectric layers in multiferroic systems offers enhanced tunability through voltage control. Vertical Magnonics involves stacks of ferromagnetic layers, and Hybrid Magnonics includes structures like artificial spin ice (ASI) layers and artificial quasi-crystals (AQCs), providing diverse stable configurations. This Special Issue gathers experimental investigations covering sample fabrication, characterization, and static or dynamic measurements. Additionally, it presents theoretical models and simulations to interpret experiments and predict effects arising from system complexity. Contributions discussing future applications in SW computing, interferometry, sensing, and logic devices are encouraged.

Guest Editor

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