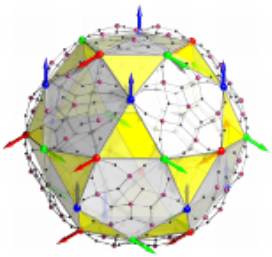

Contribution ID: **13** Type: **Keynote**

Magnon Transport in Spin Textures

Tuesday, 4 June 2019 16:30 (1 hour)

Magnonics is a concept using magnons - the collective excitation quanta of the spin system in magnetically ordered materials - as carriers for information. Magnons are waves of the electrons' spin precessional motion. They propagate without charge transport and its associated Ohmic losses, paving the way for a substantial reduction of energy consumption in computers.
The full potential of magnonics lies in the combination of magnons with nano-sized spin textures. Both magnons and spin textures share a common ground set by the interplay of dipolar, spin-orbit and exchange energies rendering them perfect interaction partners. Magnons are fast, sensitive to the spins' directions and easily driven far from equilibrium. Spin textures are robust, non-volatile and still reprogrammable on ultra-short timescales.
I will give an introduction about magnon propagation and manipulation in microstructures with non-collinear spin textures, in particular magnons propagating in nano channels formed by magnetic domain walls. Furthermore, I will address how magnons can be excited in domain wall channels by pure spin currents originating from the spin Hall effect and nonlinear effect in magnetic vortices.

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Session Classification: Spin wave and magnonics

Track Classification: Spin wave and magnonics