

Magnetization dynamics under heat currents

Jean-Philippe Ansermet¹

¹*LPMN, Ecole Polytechnique Fédérale de Lausanne, station 3, 1015 Lausanne-EPFL*

I will report on various studies conducted by my group, the aim of which was to characterize and understand how a heat current can affect magnetization.

In a metallic spin valve, a heat current was shown to change the switching field. This effect could be accounted for quantitatively by a three current model : currents of spin up, spin down, and heat.

In an insulator, we identified on a theoretical basis the existence of a magnetic equivalent to the Seebeck effect. This effect occurs only when magnetization is out of equilibrium. We found clear evidence for it by propagating spin waves into or against temperature gradients in YIG.

Recent results will be reported.