

SPINTHEORY ANNUAL WORKSHOP

Luminy campus, Marseille, June 3-4, 2024

Monday, June 3rd	
Materials for spintronics	
9h-9h20	Magnetostructural coupling: From topological defects to altermagnetism Q. Meier, Institut Néel
9h20-9h40	Spin-orbit torques in CrXTe monolayers ($X \in \{S, Se, Te\}$) L. Vojáček, SPINTEC
9h40-10h	Insulator-to-metal transition and variations of the magnetic properties in NiFe2O4 ultra-thin films R. Arras, CEMES
10h-10h20	Unexpected Competition between Ferroelectricity and Rashba Effects in Epitaxially Strained SrTiO ₃ J. Varignon, CRISMAT
10h20-10h40	Tuning the spin-orbit coupling, magnetic proximity, and band hybridization in Fe/MgO/MoS2 multilayers L. Calmels, CEMES
10h40-11h	Break
11h-11h20	Theoretical Challenges related to the SPINMAT project L. Michez, CINaM
Complex magnetic textures	
11h20-11h40	Hopf Index Calculation in Micromagnetic Finite-Element Simulations L. Gallard, IPCMS
11h40-12h	Stability and localization of coexisting nanoscale skyrmions and bimerons in an all-magnetic van der Waals heterostructure D. Li, CEMES
12h-12h20	Micromagnetic simulations with tetmag – An open-source finite-element software with GPU acceleration R. Hertel, IPCMS
12h20-12h40	Texture-induced spin-orbit coupling and skyrmion-electron bound states in a Néel antiferromagnet R. Ramazashvili, LPT
12h40-14h20	Lunch
14h20-14h40	Skyrmions theory in magnetic thin films: role of non-local magnetic dipolar interaction A. Bernard-Mantel, LPCNO
14h40-15h	Theoretical Challenges related to the CHIREX project N. Reyren, Laboratoire Albert Fert
Ultrafast phenomena	
15h-15h20	Spin- and orbital-to-charge conversion at the surface states of the topological insulator Bi _{1-x} Sb _x Armando Pezo, Laboratoire Albert Fert
15h20-15h40	Ultrafast dynamics of a spin-polarized electron gas Benjamin Bakri, IPCMS
15h40-16h	TOAST project: Probing spintronics interfaces by THz emission spectroscopy in the time domain: from fundamentals to emitter devices Henri Jaffrès, Laboratoire Albert Fert
16h-16h20	Break
Spin transport 1	
16h20-16h40	Orbital Kerr Effect and Terahertz Detection via the Second Order Hall Effect D. Ovalle, CINaM
17h-17h20	Quantum Kinetic Theory of Multiband Electron Systems and the Future of Device Modeling T. Valet, SPINTEC
17h20-17h40	Theoretical Challenges related to SPINCHARAC A. Thiaville, LPS
17h40-18h10	Tutorial: Controlling spin angular momentum with the field of light R. Géneaux, CEA/LYDIL

Tuesday, June 4th	
Physics of components 1	
9h-9h20	An Ising machine simulator based on numerical twins of spin-torque vortex oscillator devices C. Chopin, SPINTEC
9h20-9h40	Complex dynamics in mutually coupled spin torque vortex oscillators K. Ho, Laboratoire Albert Fert
9h40-10h	Normal mode models: unravelling complex magnetization dynamics in confined structures H. Merbouche, SPEC
10h-10h20	Power efficiency of Hall-like devices: comparison between reciprocal and anti-reciprocal Onsager relations, and the specificity of altermagnets J.E. Wegrowe, LSI
10h20-10h40	Challenges for theory and simulation within the SPINCOM project J.V. Kim, C2N
10h40-11h	Break
Spin transport 2	
11h-11h20	Magnon-Electron Interaction in Magnetic Topological Materials K. Sourounis, CINaM
11h20-11h40	Enhancement of Spin-Transfer-Torque and Spin-Orbit-Torque effects in magnetic core-shell nanotubes D. Gusakova, SPINTEC
11h40-12h	Theory of orbital generation, diffusion, and detection A. Manchon, CINaM
12h-12h20	Modelling of spin-orbitronics effects at interfaces and chiral molecules K. Poonam, GMT/SPEC
12h20-12h40	Diffusive approaches to modeling the orbital current transport X. Ning, CINaM/Beihang University
12h40-14h20	Lunch
Physics of Components 2	
14h20-14h40	Time Series Analysis of Chaotic Magnetization Dynamics A. Kolli, SPEC
14h40-15h	Spiking dynamics in spin-torque oscillator with two vortex free layers L. Kokkinos, C2N
15h-15h20	Stochastic phase dynamics of coupled, injection-locked spin-torque nano-oscillators for solving optimization problems L. Buda-Prejbeanu, SPINTEC
15h20-15h40	Challenges for theory and simulation within the ADAGE project M. Pannetier-Lecoœur, SPEC
END OF WORKSHOP	
Have a safe trip back home!	